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The After-results of Abdominal Operations on the Pelvic Organs, Based on a Series of 1,000 Consecutive Cases.

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VI. The After-Results of Operations for Uterine Displacements.

On two previous occasions I have reported after-results of these operations—first, in a paper read at the British Medical Association meeting at Toronto in 1906,[1] when I had the after-results of 73 cases; and, secondly, in an address to the Tottenham Division of the British Medical Association in 1908,[2] when I reported 136 cases. I have now 248 cases, distributed in three divisions: in the first, hysteropexy was combined with myomectomy; in the second, it was the only procedure done in the abdomen; in the third it was combined with unilateral salpingo-oöphorectomy on account of ovarian tumours, extra-uterine pregnancy, or inflammatory disease of the appendages. The figures are as follows:—

	Cases.	Primary Mortality.	Cases traced.
S. Hysteropexy and Myomectomy ...	27	1	23
T. Hysteropexy	220	4	170
U. Hysterectomy and Ovariotomy ...	62	0	55
	309	5	248

Percentage of cases traced, 81·5

It will be convenient to subdivide Division T. into four groups, based on the indications for the operation, as was done in the first

1. "A Study of 146 Consecutive Cases of Ventrofixation of the Uterus." *Brit. Med. Journ.*, Nov. 3 1906.

2. "The After-Results of the Surgical Treatment of Uterine Displacements." *Med. Press and Circ.*, May 20 1908.

paper referred to above. This gives us the following cases for investigation:—

T.a.	Chronic retroversion	86
T.b.	Retroversion with fixation	21
T.c.	Prolapse	34
T.d.	Procidentia	29
S.	Retroversion with fibroids	23
U.	Retroversion with appendage disease...	55
	Total	248

As there is still a good deal of confusion of terms as between ventrofixation and ventrosuspension, I will quote here a passage from my second paper, which makes it clear what I mean by "hysteropexy":—

"In this country the term 'ventrofixation' has been applied generally to all cases in which the uterus is attached to the abdominal wall; the term 'ventrosuspension' has been employed almost interchangeably. But in the United States and Colonies a sharp distinction is drawn between the two terms. By ventrofixation is understood an operation in which the uterus is made to assume a position of extreme anteflexion, and the sutures are passed through its posterior wall and firmly fixed to the fascia. A normal pregnancy after such an operation is practically out of the question. By ventrosuspension, on the other hand, is meant an operation in which the sutures are passed through the anterior wall of the uterus or the fundus, and tied to the peritoneum, and not to the fascia. By this means any subsequent pregnancy can develop undisturbed, but there is a definite tendency to return of the displacement owing to the ease with which the peritoneum stretches. The operation that I have almost invariably adopted differs from both of these, in that the sutures are passed through the anterior wall of the uterus, low down, leaving the fundus free in the event of subsequent pregnancy; and these sutures are passed on each side of the incision through the fascia as well as the peritoneum, so as to guard against a return of the displacement. Therefore, to avoid confusion, I have decided to abandon both the above terms, and use the word 'hysteropexy,' which merely implies that the uterus is stitched up to the anterior abdominal wall."

In discussing the after-results of hysteropexy I propose to consider the following questions:—

1. How is the general health affected?
2. How far are the symptoms relieved?
3. How does hysteropexy affect the bladder?
4. In what proportion of cases does the uterus remain permanently in good position?

5. What is the influence of hysteropexy on subsequent pregnancy?
6. What is the influence of subsequent pregnancy on the hysteropexy?

1. *How is the General Health Affected?*

I have data in 248 cases. Five patients died later:—

Ta. 11. This patient returned to India, and after nursing her husband through an attack of cholera succumbed to this disease in July 1904, 15 months after the operation. When I last saw her, about nine months after the operation, she expressed herself very glad to be rid of pessaries, which she had worn for 10 years before the operation.

Ta. 34. A year after the operation the patient had a normal confinement; a year later still she committed suicide by drowning herself.

Ta. 38. When this patient was seen a year after the operation, she stated that she was very well indeed, and much better than before the operation. Within four months she developed a carcinoma of the right breast which was removed in September 1907; she was then about two months pregnant. When I saw her again, in March 1908, the pregnancy had continued uninterrupted, but she was dying of a rapid and advanced carcinoma of the left breast, with systemic infection; she died undelivered two days later, the relatives not permitting any effort to rescue the child.

Tc. 6. This patient died later of carcinoma of the rectum. The uterus had kept up satisfactorily.

Tc. 19. This patient died of pulmonary œdema following an operation for hernia a year after the operation.

Eighteen patients underwent further operations. In five of these cases, Ta. 14 and 15, Tb. 8 and Td. 7 and 26, the operation was undertaken on account of a return of the displacement, and the particulars will be given later on, under question 4.

Three patients underwent operations for scar hernia, Tb. 17, S. 4 and U. 10; two of these stated that they were in very good health, and much better than before the operation; one said that her health had never been very good.

Five patients developed trouble in the appendages of one side; one of them, U. 37, had a tubal pregnancy; the others, Tb. 3, Tc. 30, U. 9 and U. 44, had inflammatory disease.

One patient, U. 39, was highly neurasthenic; she developed symptoms suggestive of tuberculosis, though the presence of tuberculous mischief could not be demonstrated; she had pain in the left side, and walked with a limp; at one time the view was expressed that she had rheumatoid arthritis in the pelvis; one surgeon regarded the case as one entirely of neurosis. Another surgeon performed an exploratory cœliotomy on account of the pain 13 months after the previous operation. He found "a band of adhesions as thick as a

crow-quill running up from the anterior wall of the fundus of the uterus to the scar of the former wound; there were also a few omental adhesions over the stump of the left broad ligament."

After this the patient lost the pain and lameness, and felt much better; she still had at times a temperature varying from 99° to 101°F., and had lost flesh. For the history of the case subsequent to the operation I am indebted to Dr. Herbert H. Brown.

Two patients developed uterine hæmorrhage, and a hysterectomy was performed; one of these, S. 22, I operated upon on May 2 1910, a year after the first operation; the other, Tc. 18, was operated upon, also a year later, by my colleague, Mr. Bland-Sutton.

One patient, Ta. 83, was found at the time of the operation to have gall-stones; a year later, on April 25 1910, I performed cholecystectomy; the gall-bladder contained 39 gall-stones.

Lastly, one patient, Ta. 79, developed hæmorrhage, for which I operated; she had fibrosis of the uterus, and a growth, the size of a walnut, between the bladder and the anterior uterine wall; this turned out to be a carcinoma. I removed the uterus and resected a portion of the bladder wall. The second operation was performed 6 months after the first, and was done in May 1909; further extension of the growth has shown itself about the base of the bladder, and the patient is now confined to bed.

Deducting the 22 cases just enumerated, excepting the one that committed suicide, we have 227 patients, and the condition of their general health was as follows:—

In 171, or 75·3 per cent., the health was very good, and much better than before the operation.

In 33, or 14·6 per cent., the health was only moderate, but better than before the operation.

In 15, or 7 per cent., the health was moderate or poor, and worse, or at least no better, than before the operation.

In 7, or 3·1 per cent., there had been ill-health lately.

The distribution of the cases is shown in the following table:—

	T.a, b, c, d.		S.		U.		Total.	
Good: Better	117	*76·3*	16	*72·8*	38	*74·5*	171	*75·5*
Moderate: Better	21	*13·4*	3	*13·6*	9	*17·6*	33	*14·5*
Poor: not better	9	*6·4*	3	*13·6*	3	*5·9*	15	*7·0*
Ill-health lately	6	*3·9*	0		1	*2·0*	7	*3·0*
	153	*100·0*	22	*100·0*	51	*100·0*	226	*100·0*

We may consider the groups in somewhat further detail. In the first group of 171 cases the accounts given by the patients of their general health contain such expressions as the following:— "Perfectly well in every way since the operation"; "a world better:

I was no good only to lie on my back and suffer"; "excellent: decidedly better in every way"; "very good: very glad to do away with pessaries"; "splendid: never so well as since the operation"; "ever so much better: quite a different woman"; "I feel that life is worth living now"; "infinitely better than before the operation"; "my general health is better than it has been for years"; "very good: much better all round"; "better than ever I have been"; "better, and can get about better"; "wonderfully better after the operation"; "it is quite a treat to be able to get about so well."

Some of the patients' medical men have written as follows:—

"I can testify to the great benefit she had derived from the operation." "Mrs. B. has never been troubled since"; "Mrs. B. has greatly benefited by her operation"; "Mrs. C. is in quite good health and is able to attend to all her duties."

In the second group of 33 patients whose general health was only moderate or fairly good, but better than before the operation, the troubles complained of were:—

Indigestion in 10 cases; weakness or tiring easily in 8 cases; "never very strong" in 4 cases; fits in 2 cases; bronchitis or weak lung in 2 cases; menorrhagia in 2 cases; dysentery, neuralgia, "underfed," gall-stones, in one case each. The last case has been mentioned as having been operated upon on April 25 1910. In one case the cause of ill-health was not stated. In this group the cases of weakness are the only ones in which the operation can be held responsible for the condition.

In the third group of 15 cases of patients whose health was poor or bad, or worse, or at least not better, than before the operation, 2 patients said that they were about the same as before the operation; 7 complained of weakness; 4 suffered from various degrees of neurosis up to pronounced neurasthenia; 1 had suffered from excessive hæmorrhage following miscarriage; and one case had amenorrhœa due to anæmia. The conditions of weakness and neurosis might be attributed to the operation.

In the last group of 7 cases of patients who had had ill-health lately, one had had influenza, which had left her nerves bad; one had gastric ulcer; one had an attack of "peritonitis"; one had a bad chest; one had a return of the displacement; and in one the cause was not stated. In only one of this group was the operation responsible, as it did not cure the displacement.

In the last two groups, therefore, of 23 cases there were 12 in which the operation might be regarded as the causal factor of ill-health; and 11 in which the operation had nothing to do with the condition.

Summing up, we find that after the operation of hysteropexy 90 per cent. of the patients were better than before the operation; as many as 75 per cent. being in very good health; whilst among the

10 per cent. who were not better, the cause had nothing to do with the operation in one-half of them.

2. *How far are Symptoms Relieved?*

I have analyzed my reports from the point of view of the relief of pain. There are 218 cases in which particulars are given: 126 cases, or 57·8 per cent., had no pain at all after the operation; 71 cases, or 32·5 per cent., had some pain, but less than before the operation. In many of these the pain was not actually pelvic, but traceable to flatulence and indigestion. Many said that the pain was "much less" than before.

Fifteen cases, or 7 per cent., had about the same amount of pain as before the operation.

Six patients, or 2·7 per cent., said that they had more pain than before the operation.

Thus there were in all 197 patients, or 90 per cent., who either had no pain or at least had less than before. We may say, therefore, that the operation has a very definite value in the relief of pain.

In some cases patients specified that they had obtained relief from particular kinds of pain. Thus 14 patients stated that they had had less dysmenorrhœa or had been free from it altogether since the operation; 26 patients had been relieved of dyspareunia; 16 had had bad headaches beforehand, and had either lost the headaches altogether or had suffered much less in this respect; two had lost the pain that they used to have on walking.

As regards other symptoms, 12 patients specified that they were able to do more or could get about better; 10 of these underwent the operation on account of prolapse; 22 patients had less severe losses of blood during menstruation than they had before the operation; 13 were relieved of excessive leucorrhœa.

Lastly, 6 patients said that they were very subject to depression or fits of melancholy before operation, but not afterwards; and 2 patients were relieved of frequent attacks of sickness.

Of 190 cases in which the condition of the bowels was specified, 117 said that the bowels were regular, and 13 of these stated that there had been great improvement in this respect since the operation; 73 patients had always suffered from chronic constipation, and one of them said that the constipation was worse since the operation.

From the point of view of the relief of symptoms, therefore, the operation may be considered a success since pain was so markedly relieved, and improvement in many other symptoms was noted.

3. *How does Hysteropexy Affect the Bladder?*

I have often been asked by medical men watching the operation whether there is not great trouble with the bladder afterwards; and I have accordingly investigated this point.

Particulars about the bladder are stated in my reports in 221 cases. The results are as follows:—

In 148 cases, or 66·7 per cent., there was no trouble at all with the bladder; 5 of these patients stated that they had been troubled with frequency of micturition before the operation, but not since.

In 22 cases, or 10 per cent., the patients had some frequency of micturition, but had suffered from it before the operation also; in 4 of them the frequency was less than before the operation; in 18 it was about the same.

In 40 cases, or 18 per cent., frequency of micturition was complained of, but the records did not state whether it was present before or had come on after the operation; in 2 cases it was only at the time of the periods; and in one case only when the patient was tired.

In 11 cases, or 5 per cent., there was some other bladder trouble; 5 of them complained of difficulty occasionally in passing water; 5 of smarting or pain at times during or after micturition; and one said that she had had to have the bladder washed out.

In the cases of prolapse or procidentia (Tc. and Td.) the figures are very similar to those in the remaining cases, except that there is a slightly higher proportion of cases where there was trouble with the bladder before the operation. The figures for the different divisions are set forth in the following table:—

	Ta. and b.		Tc. and d.		S. and U.		Total.	
No trouble	68	*70·1*	35	*66·0*	45	*63·4*	148	*67·0*
Frequency: the same as before or better	9	*9·3*	8	*15·1*	5	*7·0*	22	*10·0*
Frequency coming on after	16	*16·5*	8	*15·1*	16	*22·6*	40	*18·0*
Pain or difficulty	4	*4·1*	2	*3·8*	5	*7·0*	11	*5·0*
Total ...	97	*100·0*	53	*100·0*	71	*100·0*	221	*100·0*

We find, therefore, that in about one-fifth of the cases the operation is followed by some bladder disturbance in the form of frequency or pain in passing water; and that in four-fifths of the cases there is no trouble at all, or that the frequency is not greater than before. In 4 per cent. of cases there is definite improvement in bladder symptoms.

4. *In what Proportion of Cases does the Uterus remain permanently in good position?*

Of the 248 cases under consideration 20 were not examined; 7 of these had returned to distant countries, namely, Colombo (2 cases), Jamaica, Brazil, New Zealand, Buenos Ayres and New York. In none of these 20 cases were there any symptoms suggestive of return of the displacement, and we may properly assume that they kept all right.

Two hundred and fifteen cases were examined, and were found to have the uterus in good position, well slung up to the abdominal wall. In the great majority of cases the fundus was felt firmly attached to the abdominal wall; in the others there was some degree of mobility, and the uterus was presumably slung up by what has been called an "artificial fundal ligament" (figured in Bland-Sutton and Giles' "Diseases of Women," 6th edition, p. 535).

An opportunity of directly inspecting the condition of the uterus was supplied in 14 cases, where a later operation was undertaken. Three of these will be related presently, when speaking of cases of displacement; the others were as follows:—

Ta. 79. Five and a half months after the operation I removed the uterus and part of the bladder on account of carcinoma between the uterus and the bladder. The uterus was found firmly attached by its anterior surface to the anterior abdominal wall.

Tb. 3. Two and a half years after the operation it was necessary to remove the right appendages on account of salpingo-oöphoritis; the uterus was found firmly slung up to the abdominal wall by a short stout band.

Tb. 17. One year after the operation a radical cure of a scar hernia was done; the uterus was found slung up by a band 2 cm. long.

Tc. 30. One year and five months after the operation the left appendages were removed on account of prolapsed and cystic ovary with varix of the left broad ligament; the uterus was found slung up to the anterior abdominal wall by a band about 1 cm. thick and $2\frac{1}{2}$ cm. long.

S. 4. One year after the operation a radical cure of scar hernia was done; the uterus was found firmly attached to the anterior abdominal wall by its anterior surface.

S. 22. Thirteen months after the operation hysterectomy was done for hæmorrhage; the uterus was found firmly attached by a median ridge 3 cm. long running down the anterior uterine wall.

U. 9. A year after the operation the left appendages were removed for salpingo-oöphoritis; the uterus was found firmly attached by its anterior surface to the anterior abdominal wall.

U. 10. Ten months after the operation a radical cure of a scar hernia was done; the uterus was found firmly attached by its anterior surface to the anterior abdominal wall.

U. 37. Two and a quarter years after the operation the left appendages were removed for a ruptured tubal pregnancy. The uterus was found slung up to the anterior abdominal wall by an "artificial fundal ligament" $2\frac{1}{2}$ cm. long.

U. 39. This patient has been referred to above, as having had, thirteen months later, an exploratory operation for pain by another surgeon, who found "a band of adhesions, as thick as a crow-quill, running up from the anterior wall of the fundus of the uterus to the scar of the former wound."

U. 44. Ten months after the operation the right appendages were removed on account of salpingo-oöphoritis; the uterus was found suspended by a short "artificial fundal ligament."

We have now thirteen cases to consider in which the results were not satisfactory. In four of these, Ta. 1, Td. 13, S. 18 and U. 29, the uterus was found partly retroverted; it is possible that in some of these cases the "artificial fundal ligament" had lengthened sufficiently to allow of this position. In none of them was the condition causing symptoms, so that symptomatically the patients were cured, though anatomically the result left something to be desired. In 8 cases the operation may be considered to have been a failure; four of them were operated upon again, and four were not. Of the latter, three were cases of return of retroversion; one of them, Ta. 61, is now comfortable with a Hodge pessary, while the other two, Ta. 46 and S. 17, were not in any great discomfort, and no further treatment was adopted. One, Td. 5, was a case of return of procidentia; when I last saw her she expressed a wish to have something further done; but she did not turn up again.

The four cases operated upon were as follows:—

Ta. 14 and 18. In this case the displacement recurred very soon, and the second operation was $4\frac{1}{2}$ months after the first. The uterus was found quite free from the abdominal wall, the two sutures employed to secure it having apparently cut out.

Tb. 8 and S. 8. The second operation was done a year and a half after the first; the uterus was quite detached from the abdominal wall. In this case also two sutures only were employed at the first operation. At the second operation a small fibroid was found to have developed in the fundus, and a myomectomy was done at the same time.

Tb. 15. I saw this patient a year and a half after the operation, when the uterus was well slung up in good position. She continued very well for another eight months, when she had a severe jolt from being thrown out of a trap. She was taken into the Margate Hospital, and the uterus was found completely retroverted; a hysterectomy was done.

Td. 7 and Tc. 19. The operation was done for procidentia; eleven months later a partial prolapse was found. At the operation the uterus was found inadequately supported by a long slender band; the uterus was refixed.

We have, lastly, a rather remarkable case, Td. 31. This patient was a rachitic dwarf with a markedly contracted pelvis, the true conjugate measuring one inch. Although she was a single woman, there was a complete procidentia. An extensive plastic operation was done on the anterior and posterior vaginal walls, with perineorrhaphy; then the abdomen was opened and the uterus fixed up with three sutures. Six months later the procidentia had

apparently returned completely, as the cervix protruded from the vulva along with the vaginal walls. On re-opening the abdomen the fundus was found firmly fixed by its anterior surface to the anterior abdominal wall; but there was an enormous hyperplasia of the supra-vaginal portion of the cervix, the uterus measuring about 7 inches in length. I decided to do a panhysterectomy, and sutured the upper end of the vagina to the anterior abdominal wall. Two months later she seemed very well; the vagina was drawn up taut to the abdomen. But within three weeks of this she came again with the vaginal walls turned inside out again. In March of this year I took her into the Hospital again, and dissected off the whole of the vagina, inverted the raw surface, and closed it completely. The result remains to be seen.

In this case, as far as the fixation of the uterus was concerned, the operation was a success; but, owing to the hyperplasia, and the eversion of the vagina, it was a failure; so it is best omitted from our calculations.

Omitting this case, and the 20 cases not seen, we have 227 cases, of which the results may be stated as follows:—

Uterus in good position	215 cases,	or 94·7	per cent.
Partial displacement	4 ,,	,, 1·8	,, ,,
Operative failure	8 ,,	,, 3·5	,, ,,

In a good many of these cases the uterus had been subjected to the strain of subsequent pregnancy. I shall consider these cases by themselves later under Question 6.

A percentage of 94·7 per cent. of successful cases may be considered to be satisfactory.

It has sometimes been said that whilst hysteropexy may give good results in the treatment of retroversion, the results are indifferent or bad in the treatment of prolapse or procidentia.

To determine this question, we may compare the results in Divisions Ta. (for chronic retroversion), Tb. (for adherent retroversion), S. (for retroversion with fibroids), and U. (retroversion and diseased appendages), with those of Tc. (prolapse) and Td. (procidentia). We then get the following table:—

	Ta. & b., S. & U.		Tc.		Td.		Total.	
Uterus in good position	163	*94·7*	30	*100·0*	22	*88·0*	215	*94·7*
Partial displacement ...	3	*1·8*	0	*0·0*	1	*4·0*	4	*1·8*
Operative failure	6	*3·5*	0	*0·0*	2	*8·0*	8	*3·5*
	172	*100·0*	30	*100·0*	25	*100·0*	227	*100·0*

This table shows that, as far as cases of prolapse are concerned, the results are excellent, as there was not a single case of return of displacement among them.

In cases of procidentia the results are not so good as in cases of retroversion, but even among these there were 88 per cent. of successes.

When we consider the extensive stretching and relaxation of all the parts in these cases, the results may be regarded as satisfactory.

I may here express my opinion that in order to get good results in cases of prolapse and procidentia, it is necessary as a rule to restore the integrity of the perineum; and in many cases also an anterior colporrhaphy has to be done to cure a cystocele, and the uterus must be curetted if there is much endometritis.

The following combinations of operations were done in these cases:—

Hysteropexy and perineorrhaphy in 28 cases.
Hysteropexy, perineorrhaphy and curetting in 2 cases.
Hysteropexy, anterior colporrhaphy and perineorrhaphy in 18 cases.
Hysteropexy, colporrhaphy, perineorrhaphy and curetting in 4 cases.
Hysteropexy and amputation of the cervix in 2 cases.
Hysteropexy, amputation of the cervix and perineorrhaphy in 1 case.
Hysteropexy, perineorrhaphy and shortening of the utero-sacral ligaments in 1 case.
Hysteropexy, curetting, trachelorrhaphy, perineorrhaphy and shortening of the utero-sacral ligaments in 1 case.

5. *What is the Influence of Hysteropexy on subsequent Pregnancy?*

There exists in the minds of many members of the profession an idea that hysteropexy precludes any possibility of normal pregnancy and safe confinement afterwards; and that in consequence the performance of the operation on a married woman during the child-bearing period is not justifiable.

If by hysteropexy were meant the operation of ventrofixation, in which the posterior surface of the uterus is firmly stitched to the anterior abdominal fascia, the fundus being doubled forwards, the idea just spoken of would be quite well founded, as indeed it would be with reference to any fixing operation that did not leave the uterine fundus free to expand. For all such operations I hold no defensive brief.

But when it is stated that hysteropexy is a dangerous operation to perform in a woman who may become pregnant, the precise kind of operation that is meant ought to be specified.

I am prepared to maintain, in view of the results in my cases, that when hysteropexy is carried out in the manner laid down at the beginning of this paper it is as safe and proper an operation

to perform in cases where pregnancy is likely to follow as in cases where there is no such likelihood.

Of the 248 cases with which we are now concerned, 37 were single women, 13 were widows, and 54 were married women over 40 years of age; whilst 144 were married women under 40, that is, at the child-bearing age.

Of these 144 women, 48, or just one-third, became pregnant after the operation, and between them they had 60 pregnancies; 35 patients bore 44 full-time children and had 5 miscarriages, and one of them is pregnant again; 1 had a miscarriage, and is now pregnant again; 2 were pregnant when last seen; and 9 had 10 miscarriages between them.

The question is of such importance that I make no apology for giving full particulars of the cases:—

Ta. 1. Operation April 1900 for retroversion and hyperplasia of the cervix: a portion of the cervix was amputated. Normal confinement on March 17 1903.

Ta. 3. Operation in September 1901. There was a miscarriage at 3–4 months shortly after the operation. On August 5 1906 a normal confinement.

Ta. 6. Operation in February 1902. Patient married again early in 1905, and had a full-time confinement of a boy on December 12, 1905; she described it as "rather long, but a good time." She had two later confinements, one on December 6 1908, when a still-born girl, weighing 14 lbs., was delivered after 5 days' labour; it was a breech presentation. The other was also a breech presentation, and resulted in the delivery of a still-born girl, weighing 11 lbs. "Both very dreadful confinements."

Ta. 9. Operation in February 1903. Normal confinement of a girl at term in August 1904.

Ta. 13. Operation in June 1904. This patient had had a succession of miscarriages before the operation, 8 or 9 altogether. Dr. F. N. Kay-Menzies wrote, in July 1906: "She did very well in every way until December 1905, when she aborted a four months pregnancy quite suddenly and unexpectedly. Up to the day of the abortion she was apparently in perfect health and doing well. Having passed the third month comfortably, which had always been the critical period previously, there seemed to be every hope of her carrying the child to full term, but unfortunately our hopes were suddenly dashed to the ground one day by a sudden faintness, hæmorrhage and subsequent abortion."

Ta. 19. Operation in February 1905. There was a miscarriage at 2 months, 3 months after the operation. On May 19 1906 a normal confinement of a girl: "everything was straightforward at the time."

Ta. 20. Operation in March 1905. In January 1906 a confine-

ment of a girl: occipito-posterior presentation: chloroform and forceps. On September 25 1907 another confinement of a girl; chloroform and forceps. Attended by Dr. W. P. Warren.

Ta. 25. Operation in September 1905. Confinement of a girl on October 17 1907; attended by Dr. Kirton. "The labour was rapid and natural": she was "remarkably well during the pregnancy."

Ta. 26. Operation in October 1905. A miscarriage took place at 5½ months in May 1906.

Ta. 34. Operation in April 1906. On August 22 1907 Dr. H. E. Garrett wrote: "I am pleased to be able to inform you that Mrs. L., on whom you did a ventrofixation of the uterus, was admitted to the City of London Lying-in Hospital on the 14th inst. at 1 a.m., and was delivered, at 9 p.m., of a well-developed child. Mother and child well at this date. I may add that there was no evidence of distortion or displacement of the uterus, and the only steps taken were the recumbent position from the first; the membranes were allowed to remain entire till the end, and ruptured shortly before delivery."

Ta. 35. Operation in April 1906. Dr. J. B. Wallace writes: "I confined Mrs. C. on November 5 1907 of her second child, a girl; no chloroform or forceps used. I visited her at 10-45 a.m., 12-30 p.m. and 4-30 p.m., and, lastly, at 11-45 p.m., and remained at the house till 1-30 a.m. Her third child, a boy, was born on September 3 1909. I attended from 4-30 a.m. to 6-30 a.m., and that included motoring to and from Balham (from Clapham). No chloroform or forceps used. There appeared nothing noteworthy in the confinements."

Ta. 38. This case has been already referred to. She died of carcinoma of the breast when she was 7½ months pregnant. There was nothing unusual about the pregnancy.

Ta. 40. Operation in July 1906. On September 14 1907 confinement of a girl; attended by Dr. W. R. Orr: "an easy and rapid labour."

Ta. 42. Operation in October 1906. In March 1907 a miscarriage at 3 months; cause not stated.

Ta. 46. Operation in October 1906. A miscarriage (?) at 3½ months in October 1908. The patient stated that "there was nothing properly formed," so one canot be certain that it was a miscarriage. The evening before it occurred she had a very long walk, and she thinks that she over-exerted herself.

Ta. 50. Operation in December 1906. On July 26 1908 Dr. F. Voller wrote: "I am pleased to inform you that Mrs. M., whom you operated upon about 20 months ago, was delivered of a fine child on July 13 1908. The labour was normal, but somewhat slow, and I used forceps to take off the strain on the abdominal wall as much as possible."

Ta. 59. Operation in November 1907. At the end of November 1908 there was a (?) miscarriage at 6 weeks. Dr. F. Dewar Forbes

wrote on December 17 1909: "It may interest you to know that Mrs. M. (on whom I understand you operated some time ago for malposition of the uterus) has been confined. The labour was normal in all respects and accomplished without anything unusual except that the uterus was exceedingly tender to the touch—so much so that the expression of the placenta was out of the question. As it did not come in a conveniently reasonable time I gave her a little chloroform and expressed it easily."

Ta. 62. Operation in February 1908. On September 24 1909 Dr. John Kyffin wrote: "I am glad to be able to tell you that Mrs. M., who was delivered by me on August 30 of a very fine boy, has made an uninterrupted recovery. There were no complications except that the labour was a slow one. . . . The uterus now appears to be in excellent position and normal size."

Ta. 67. Operation in May 1908. On October 3 1909 Dr. G. C. B. Miéville wrote: "On October 16 I confined Mrs. B. of a 7½ lbs. male child. Having examined her and found the os very high up and about the size of half-a-crown, I left her, and within an hour was urgently sent for; so having read in the *Brit. Med. Journ.* blood-curdling accounts of what happened on such occasions after ventro-fixation, I expected something awful had happened, but she was just as I had left her. Later I put on forceps and delivered her without any trouble. All went on as normally as usual."

Ta. 68. Operation in May 1908. A normal confinement of a boy took place on August 7 1909.

Ta. 69. Operation in May 1908. In December 1909 patient was prematurely confined, at 6 months, of an under-developed and still-born child, weighing 2 lbs.

Ta. 75. Operation in September 1908. On October 6 1909 Dr. J. E. B. Wells wrote: "Mrs. G. was delivered of a live female child on Sunday morning (October 3). Labour commenced on Saturday evening at 8 p.m., and terminated at 3-50 a.m. The child weighed about 8½ lbs.—she says it is the largest she has had. There was a very slight tear of the perineum, and I do not think there can have been much, if any, of the cervix. There was very little hæmorrhage, and the confinement was in other respects normal. She is as well as can be expected up to now, so that the hysteropexy and "grand tour" you performed on her seem to have been eminently successful."

Ta. 76. Operation in October 1908. On April 25 1910 normal confinement. Labour lasted from 11-30 p.m. to 1-15 a.m. Child weighed 9½ lbs. Attended by Dr. W. Mailer.

Ta. 78. Operation in October 1908. Patient had a normal confinement of a boy on July 28 1909.

Tb. 1. Operation in September 1898. Patient was married in May 1900. In February 1905 she thought she had a miscarriage at 3 months; some "black blood" came away, but nothing else till

4 weeks later, when "pieces of flesh and skin" came away. The patient was then 41 years of age.

Tc. 2. Operation in July 1902. Six months after the operation she thought she had a 2 months miscarriage: patient was then 42 years of age.

Tc. 4. Operation in February 1903. In January 1904 a miscarriage at 3 months: patient was then 40 years of age.

Tc. 8. Operation in November 1903. On November 25 1904 Dr. L. P. Gordon wrote: "On October 22 I attended Mrs. B. during her confinement. When I first saw her I found the os slightly dilated . . . . when next called I found the os about half dilated and quite rigid. I tried to dilate, but could not. The pulse had increased to 140 per minute, so I decided to give her chloroform and remove the child with instruments. As soon as I tried to do so the rigid cervix gave way and a laceration took place. The perineum also ruptured in the line of the old scar."

Tc. 19. Operation in May 1904. A natural confinement took place on December 23 1905.

Tc. 10. Operation in August 1904. Normal confinement of a girl on May 20 1909. Attended by Dr. H. F. Staunton.

Tc. 12. Operation in September 1904. Patient had 2 children after the operation; these and the last child born before the operation were all three at 7 months and "cross-births."

Tc. 16. Operation in January 1906. Confinement of a girl, weighing 9½ lbs., on March 1 1908. The labour lasted from 4 p.m. to 7 p.m.; the pains were limited to the back; she had none at all in the abdomen. The confinement was said to be normal, though she was delivered with forceps under chloroform.

Tc. 20. Operation on October 18 1906. It was undertaken for procidentia and a pelvic tumour. The latter was found to be the right kidney firmly fixed in the hollow of the sacrum. Right horn of the uterus undeveloped; right ovary and tube present, but small. At the time of the operation menstruation was a few days overdue, and she was probably some weeks pregnant. On June 24 1907 Dr. W. H. Paine wrote: "You will perhaps be interested to know that on June 17, a week to-day, I delivered Mrs. H. of a fine, healthy girl, and the mother and the child are doing well. There was a little difficulty in delivering with forceps, and I found afterwards that there was a considerable swelling in the curve of the sacrum, behind, but apparently not attached to, the uterus."

Tc. 26. Operation in November 1907. In May 1909 she had a miscarriage at 2 months, brought on by a sudden fright caused by seeing her little boy apparently falling into the water.

Tc. 32. Operation in February 1909. On January 7 1910 patient had a "quite normal confinement."

Td. 1. Operation in May 1902. Some months after the operation

she had a miscarriage at 9 weeks. When last seen, in April 1910, she was 6 months pregnant. She had had no pregnancies in the interval.

Td. 9. Operation in July 1906. Patient was confined on January 19 1908, when she was attended by Dr. D. Petty, who reported that there was some pain during pregnancy, and that labour was slow, but otherwise normal.

Td. 12. Operation in March 1908. On June 6 1909 patient had a "quite normal confinement" of a girl.

Td. 14. Operation in April 1908. Patient stated, when seen in October 1909, that she had had 2 miscarriages which she brought on by passing a catheter.

S. 11. Operation in March 1907. On March 23 1908 I attended the patient, when she was normally confined of a girl. She had an easy and rapid second stage of labour.

U. 1. Operation in September 1898. On June 9 1902 Dr. C. H. Wakeham wrote: "I delivered Mrs. H. last night at 11-30 p.m. of a fine female child, the presentation was the first normal. The pains started on June 5, from which day up to last evening they had been, to use the patient's own words, "all anyhow"; this I found to mean that they were at no regular intervals, until 8 p.m. last night, when they began by coming on every 10 minutes. I was summoned at 11 p.m., when the head was right down on the perineum and the child was expelled by two pains. The placenta was expelled five minutes after. The amount of hæmorrhage did not amount to 2 oz. . . . I am only too pleased to give you such a satisfactory account."

U. 3. Operation in September 1902. In August 1904 patient had a normal confinement of a boy; labour was slow; there was no undue hæmorrhage. On September 16 1906 she was again confined of a boy, two weeks before the expected time, owing to her falling off a 'bus. Forceps was used, as "the head had got fixed on a bone." She lost a great deal of blood while the baby was being born. In October 1907 she had a miscarriage at 3 months.

U. 7. Operation in February 1903. On April 1 1904 she was delivered by Dr. McAskie of a girl; natural labour, lasting 8½ hours; no chloroform. On April 27 1910 Dr. McAskie wrote: "I attended Mrs. P. on October 26th 1906; the duration of labour was quick and quite natural. I attended her again on February 26 1909; the duration of labour was rather prolonged; it was her fourth child and the labour was quite natural."

U. 11. Operation in February 1904. Patient married afterwards, and had 2 confinements, the first on July 29 1905, and the second on July 24 1906. Both boys. Both labours were easy and rapid, the babies being born before the doctor's arrival.

U. 20. Operation in January 1905. A normal confinement of a boy on February 17 1907. Attended by Dr. C. M. Flide.

U. 21. Operation in December 1906. In September 1907 a confinement of a boy: "a good hard time, but straightforward." Another boy was born on October 23 1908: "the confinement went off very satisfactory." In February 1910 she was again 4 months pregnant.

U. 46. Operation in July 1908. On May 5 1910 Dr. W. R. Orr wrote: "Mrs. G. was confined this morning—baby girl—pains for 2½ days. Membranes ruptured early yesterday. Slow labour, and when the head was on the perineum I used forceps, as she was exhausted. Only slight tendency to hæmorrhage afterwards, but the uterus very soon contracted well. The child was a large and healthy one."

In discussing these cases we may keep in mind two questions:—

(*a*) Does hysteropexy predispose to miscarriage?

(*b*) Does hysteropexy cause complications during labour?

(*a*) Among the above cases there were 16 miscarriages. We can at the outset dismiss the two that were self-induced in case Td. 14. Two others, Ta. 26 and Ta. 74, were at 5½ and 6 months, when the uterus had risen well out of the pelvis; and consequently the influence of the operation would no longer be exerted in the direction of stopping the pregnancy. One patient, Ta. 13, had had a succession of miscarriages before the operation: the miscarriage that occurred after had advanced further than the previous ones. One patient, Tc. 26, miscarried as the direct result of a severe fright, and another, Ta. 46, as the result of over-exertion on the previous day. One patient, U. 3, had two full-time confinements after the operation and then a miscarriage. In all these 8 cases the operation can evidently be exonerated of responsibility.

In some of the other cases it was not clear that a miscarriage had really occurred: in Ta. 59 there was said to be a miscarriage at 6 weeks; in Tb. 1 the patient was married 2 years after the operation, at the age of 36; and 5 years later, when she was 41 years of age, she thought she had a miscarriage, when "black blood" came away, and, 4 weeks later, "pieces of flesh and skin." In Tc. 2 the patient was 42 when she "thought she had a two months miscarriage."

There remain 5 cases, in which it is permissible to suppose that the hysteropexy was a causal factor in the miscarriage; and in four of these it is noteworthy that the patient became pregnant very soon after the operation. Ta. 3 miscarried at 3–4 months "shortly after the operation"; Ta. 19 miscarried at 2 months three months after the operation, so that she must have become pregnant a month after; Ta. 42 miscarried at 3 months five months after the operation, and must have become pregnant two months after. Td. 1 miscarried at 9 weeks "some months after the operation." Three of these patients became pregnant again, two of them having normal confinements, and one being now 7 months pregnant. Lastly, one patient, Tc. 4,

miscarried at 3 months a year after the operation, being then 40 years of age.

The deduction that we may make from these data is that hysteropexy probably causes a slight predisposition to miscarriage, particularly when pregnancy ensues very soon after the operation.

(*b*) *Does hysteropexy tend to complicate labour?* Of 44 cases of full-time confinements there were only 4 that presented any important complication: two of these were breech presentations of unusually large children, weighing 14 lbs. and 11 lbs. respectively; and the patient who had these two children had already had one normal confinement following the operation. The other two were transverse presentations at 7 months, and the patient who had these 2 children had had the same complication of a transverse presentation at 7 months before the operation. We can therefore bring in a verdict of "not guilty" for the operation in these 4 cases. Of the remaining 40 there were several where forceps was used, and one where there was a rigid cervix; there is no reason to suppose in any of these cases that the operation was responsible. The use of forceps was resorted to in 8 cases out of 40, one of these being an occipito-posterior; in several the forceps was used just at the end, to expedite matters. Probably most practitioners nowadays who used forceps in only 8 out of 40 cases would feel that they had been rather sparing. We are, therefore, I feel, justified in stating, on the basis of these observations, that hysteropexy causes no complications during labour.

6. *What is the Influence of Subsequent Pregnancy on the Hysteropexy?*

Of the 48 patients who became pregnant after the operation, 10 were not seen after pregnancy or confinement. One had a partial retroversion after a full-time confinement; and one had a complete retroversion after a 3½ months miscarriage. In the remaining 36 cases the uterus was found well slung up in good position. Twenty-nine patients were examined after full-time confinement; 6 of the patients had had 2 confinements, and one had had 3; of the 29, only one had a partial retroversion. The tendency, therefore, to a return of the displacement after a full-time confinement may be expressed numerically as not more than 1 in 29, or 3·4 per cent.

We found, when discussing Question 4, that the percentage of cases of partial or complete return of displacement in all cases was 5·3 per cent. The following table compares the results in non-pregnant cases with those following pregnancy and those following full-time confinement:—

	Non-pregnant.		Pregnant.		Confinement.		Total.	
Uterus in good position	179	*94·7*	36	*94·7*	[28	*96·6*]	215	*94·7*
Displacement	10	*5·3*	2	*5·3*	[1	*3·4*]	12	*5·3*
Total ...	189	*100·0*	38	*100·0*	[29	*100·0*]	227	*100·0*

It is evident, therefore, that the results of hysteropexy after pregnancy are just as good as the results when no pregnancy follows; the results after confinement at full-time work out actually a trifle better than the others. Consequently we may say that subsequent pregnancy and labour have no disturbing effect on the hysteropexy.

Conclusions.

We may sum up the conclusions of this section as follows:—

1. The effect of hysteropexy on the general health is very good, as 90 per cent. of the patients were better than before the operation, as many as 75 per cent. being in quite good health; whilst among the 10 per cent. who were not better the cause had nothing to do with the operation in one-half of them.

2. Symptoms are markedly relieved: 90 per cent. of the patients had either no pain afterwards or had less pain than before the operation; 14 patients were relieved of dysmenorrhœa, 21 of dyspareunia, and 16 of headaches; 22 patients got relief from menorrhagia, and 13 from excessive leucorrhœa; 13 patients found their constipation improved.

3. As regards the effect of hysteropexy on the bladder, 18 per cent. of patients experienced frequency of micturition, and 77 per cent. had no trouble, or no more than before the operation.

4. The position of the uterus remains permanently good in about 95 per cent. of cases; about 5 per cent. suffer from partial or complete return of displacement. The results in cases of procidentia are not quite as good as in cases of retroversion or prolapse; but 88 per cent. of cases of procidentia show permanent good results. To obtain the best results in the latter cases combined operations are usually necessary.

5. In the event of pregnancy following hysteropexy, there is a slightly increased tendency to miscarriage if pregnancy follows too soon after the operation; hysteropexy causes no subsequent complications of labour, as out of 44 cases of full-time delivery 40 had normal confinements, and the remaining 4 had complications independent of the operation.

6. When pregnancy follows hysteropexy the position of the uterus is not disturbed thereby, as the results after pregnancy were just as good as in cases where no pregnancy followed, and the cases of full-time delivery showed only one case of partial return of displacement out of 29 cases. Among these cases therefore the uterus kept in good position in 96·6 per cent. of the cases, as against 94·7 per cent. in the case of patients who did not become pregnant.

(To be concluded in the next number.)

TABLE T. Hysteropexy. (a) For Chronic Retroversion.

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound	Gene
1	A. H. 20 S	1900 April 20	P. W. H.	—	Retroversion and hyperplasia of the cervix : amputation of the cervix : hysteropexy, 2 sutures	—	Very go
2	S. L. 39 M	Oct. 17	P.	—	Hysteropexy, 3 sutures	—	"Perfect every operatic
3	E. K. 22 M	1901 Sept. 20	P. W. H.	Dr. J. Gray Duncanson	Hysteropexy, 2 sutures	—	Very had no
4	S. F. 35 M	Nov. 21	Do.	—	Hysteropexy, 3 sutures	—	Never was ne months tion : than be
5	B. 29 M	Nov. 30	P.	Dr. Kenneth Frazer	Hysteropexy, 3 sutures	—	Very go 1906, le Frazer : never b since"
6	E. E. 33 M	1902 Feb. 13	P. W. H.	Dr. W. Overend	Hysteropexy, 3 sutures	—	Fairly go all my debility than be
7	E. C. 28 S	Oct. 23	Do.	—	Hysteropexy, 2 sutures	—	Very goo have b woman"
8	N. M. 39 W	Dec. 15	C. H, W.	—	Hysteropexy, 2 sutures	—	Good : better : good on my bac suffer"
9	C. H. 27 M	1903 Feb. 24	P. W. H.	—	Hysteropexy, 3 sutures	—	Bor : ha allen c much
10	J. C. 32 M	April 21	P.	Dr. J. B. Wallace	Curetting : hysteropexy	—	Moderate ame"
11	E. S. 28 M	April 30	Do.	Dr. G. N. Meachen	Curetting : hysteropexy	—	Patient d positi

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	Very good	Cystocele: deficient perineum: uterus partly retroverted	Normal confinement, March 17 1903	May 4, 1903
—	"Perfectly well in every way since operation"	? (patient living in Jamaica)	—	April 8, 1906
—	Very good: "has had no pain lately"	—	(*a*) Miscarriage at 3–4 months soon after operation. (*b*) Normal confinement, Aug. 5, 1906	July 17, 1906
—	Never very strong: was nervous for 12 months after operation: better now than before	Uterus well slung up in good position	—	Feb. 20, 1906
—	Very good: July 7 1906, letter from Dr. Frazer: "Mrs. B. has never been troubled since"	Fundus well slung up: cervix rather low	—	April 30, 1903
—	Fairly good: "suffered all my life from debility: much better than before"	Uterus well slung up in good position	(*a*) Confinement of a boy, Dec. 12 1905. Rather long, but "a good time." (*b*) Confinement of a still-born girl, weighing 14 lbs., after 5 days' labour, Dec. 6, 1908, breech presentation. (*c*) Confinement of a still-born girl, weighing 11 lbs., Feb. 6, 1910: "leg-presentation"	April 2, 1910
—	Very good indeed: "I have been a new woman"	Uterus well slung up: ovaries normal	—	Feb. 16, 1906
—	Good: "a world better: I was no good only to lie on my back and then suffer"	Uterus well slung up	—	Mar. 26, 1907
—	Poor: has fits, and has fallen on the fire: much better"	Uterus well slung up: left ovary prolapsed	Confinement of a girl at term, Aug. 1904: normal	Dec. 14, 1906
—	Moderate: "about the same"	Uterus well slung up	—	Mar. 20, 1906
—	Patient died of cholera in July, 1904. When last seen, the uterus was in good position			

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
12	D. A. 33 M	1904 Jan. 25	P.	Dr. R. Adcock	Hysteropexy, 3 sutures	–
13	J. T. 28 M	June 23	P. W. H.	Dr. F. N. K. Menzies	Hysteropexy, 3 sutures	–
14	E. W. 43 M	July 21	P.	Dr. A. G. T. Hanks	Hysteropexy, 2 sutures	–
15	E. R. 24 M	July 21	P. W. H.	Dr. J. Smyth	Hysteropexy, 3 sutures	–
16	G. R. 59 M	Oct. 31	C. H. W.	Dr. D. J. M. Conacher	Hysteropexy, 3 sutures	–
17	E. C. 32 M	Oct. 31	Do.	—	Hysteropexy, 2 sutures	–
18	E. W. 43 M	Dec. 5	Do.	Dr. A. G. T. Hanks	Hysteropexy, 3 sutures: perineorrhaphy	–
19	A. J. 23 M	1905 Feb. 16	P. W. H.	—	Curetting: hysteropexy, 3 sutures	–
20	J. S. 25 M	Mar. 9	Do.	—	Hysteropexy, 3 sutures	–
21	K. S. 37 M	May 13	P.	Dr. A. J. Chalmers	Hysteropexy, 3 sutures	–
22	E. A. 30 M	June 1	P. W. H.	Dr. R. Morrow	Hysteropexy, 2 sutures	–
23	C. G. 32 M	June 14	P.	Dr. J. S. Warrack	Hysteropexy: curetting: radical cure of right inguinal hernia	–
24	A. A. 28 M	July 6	P. W. H.	Dr. Lawson Smith	Hysteropexy, 2 sutures: curetting	–
25	M. G. 28 M	Sept. 11	C. H. W.	Dr. G. W. F. Macnaughton	Hysteropexy, 2 sutures: trachelorrhaphy	–

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	"Excellent: decidedly better in every way"	Uterus well slung up	—	April 30, 1906
—	Very good: "much better"	Uterus in good position	Miscarriage at 4 months, Dec. 1905	July 20, 1906
—	Moderate	Recurrence of displacement: see No. 18	—	Dec., 1904
—	Very good: "very glad to do away with pessaries"	Uterus in good position	—	May 3, 1907
—	Fair: "on the whole better"	Uterus well slung up	—	Feb. 5, 1906
—	"Splendid: never so well as since the operation"	Uterus well slung up: N.B.—The bladder was full when examined, and occupied the normal position in front of the uterus	—	Feb. 7, 1906
—	"Ever so much better: quite a different woman"	Uterus well slung up: perineum good	—	Jan. 1, 1906
—	"I feel better than I have been since I was married"	Uterus in good position: mobile: a band about 1 in. in length is felt	(*a*) Miscarriage at 2 months, 3 months after operation. (*b*) Confinement of a girl on May 19 1906: natural	July 17, 1906
—	Very good: but not quite so well since last confinement	Uterus well slung up:	(*a*) Confinement of a girl, Jan. 1906. Instruments for occipito-posterior. (*b*) Confinement of a girl, Sept. 27 1907: forceps	Feb. 17, 1908
—	"Fair: better than before"	Not examined (patient in Colombo)	—	May, 1908
—	Weak: suffers from menorrhagia: "better"	Uterus well slung up	—	July 14. 1906
—	Very good: "I feel that life is worth living now"	Uterus well slung up	—	July 6, 1906
—	Very good: "much better"	Uterus well slung up	—	July 27, 1906
—	Very good: "was remarkably well during pregnancy"	Uterus well slung up: cervix looks well	Confinement of a girl, Oct. 17 1907. Labour was rapid and natural	Mar. 9, 1908

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.	Gene
26	E. M. 18 M	1905 Oct. 12	P. W. H.	—	Hysteropexy, 3 sutures	—	Anæmic "worse blood carriage
27	E. M. 32 M	Nov. 20	C. H. W.	—	Hysteropexy, 3 sutures	—	Very goo same"
28	F. K. 49 M	Dec. 7	P. W. H.	Dr. J. B. Muirhead	Hysteropexy, 3 sutures	—	Poor: h after o better t
29	E. C. 50 M	1906 Jan. 26	P.	Dr. K. Frazer	Hysteropexy, 3 sutures	—	Very go very mu before
30	C. L. 48 M	Jan. 29	C. H. W.	—	Hysteropexy, 2 sutures	—	Good, bu "better
31	E. D. 30 M	Feb. 8	P. W. H.	Dr. T. E. H. Fisher	Hysteropexy: curetting: perineorrhaphy	—	Poor, "worse
32	S. A. 38 M	Feb. 22	Do.	—	Hysteropexy, 3 sutures: cysts in left ovary punctured	—	Very goo ent wom
33	E. C. 25 M	Mar. 8	Do.	—	Hysteropexy, 3 sutures	—	Very go pressed has r "better
34	S. L. 28 M	April 5	Do.	—	Hysteropexy, 3 sutures	—	Very g better"
35	E. C. 30 M	April 9	C. H. W.	Dr. J. B. Wallace	Hysteropexy, 3 sutures	—	"In qui and ab all (doctor
36	E. S. 30 M	April 26	P. W. H.	—	Hysteropexy, 3 sutures	—	Good: " better"
37	A. L. 38 M	May 10	Do.	Dr. R. Murray Leslie	Hysteropexy, 3 sutures	—	Moderat till Au she ha which p very m
38	A. M. 35 M	May 21	C. H. W.	Dr. B. H. J. Gardiner	Hysteropexy, 3 sutures	—	"Very very m

Found.	General Health.	Local Conditions.	Remarks.	Date.
—	Anæmic and weak: "worse from loss of blood after miscarriage"	Uterus well slung up: some thickening round the left appendages	Miscarriage at 5½ months, in May 1906	Mar. 26, 1908
—	Very good: "about the same"	Uterus well slung up	—	July 24, 1906
—	Poor: had dysentery after operation, but better than before	Uterus well slung up	—	Aug. 2, 1906
—	Very good: "I feel very much better than before operation"	Uterus well slung up	—	Jan. 31, 1907
—	Good, but easily tired: "better"	Uterus well slung up	—	Oct. 10, 1907
—	Poor, feels weak: "worse"	Uterus well slung up: perineum sound	—	July 16, 1907
—	Very good: "a different woman altogether"	Uterus well slung up: ovaries normal	—	Feb. 2, 1907
—	Very good: gets depressed because she has no children: "better"	Uterus well slung up	—	Mar. 9, 1907
—	Very good: "much better"	Not seen since confinement	Normal confinement, Aug. 14 1907. April 1908, patient committed suicide by drowning herself	Aug. 22, 1907
—	"In quite good health and able to attend to all her duties" (doctor's report)	—	(*a*) Normal confinement of a girl, Nov. 5 1907. (*b*) Normal confinement, Sept. 3 1909	May 2, 1910
—	Good: "I think I feel better"	Uterus well slung up	—	Feb. 25, 1908
—	Moderate: felt well till Aug. 1906, when she had a curetting, which pulled her down very much	Uterus well slung up	—	June 29, 1907
—	"Very well indeed: very much better"	Uterus well slung up	Sept. 1908, amputation of right breast for carcinoma. March 1909, 7½ months pregnant: dying of extensive carcinoma of left breast	May 24, 1907

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.
39	M.M. 32 M	1906 June 7	P. W. H.	Dr. A. L. Marshall	Hysteropexy, 3 sutures	—
40	A. W. 28 M	July 2	C. H. W.	Dr. W. R. Orr	Hysteropexy, 3 sutures	—
41	L. L. 27 M	July 2	Do.	—	Hysteropexy, 3 sutures	—
42	N. E. 32 M	Oct. 8	Do.	—	Hysteropexy, 3 sutures	—
43	L. B. 42 S	Oct. 8	Do.	—	Hysteropexy, 2 sutures	—
44	E. H. 49 W	Oct. 13	P.	—	Hysteropexy, 3 sutures	—
45	C. P. 29 S	Oct. 22	C. H. W.	—	Hysteropexy, 3 sutures	—
46	M. R. 28 M	Oct. 29	Do.	Dr. W. L. Cumming	Hysteropexy, 2 sutures	—
47	A. R. 38 M	Oct. 29	Do.	—	Hysteropexy, 3 sutures	—
48	A. R. 26 S	Nov. 5	Do.	—	Hysteropexy, 3 sutures	—
49	E. C. 46 M	Dec. 13	P. W. H.	Dr. H. Lloyd Patch	Hysteropexy, 3 sutures	—
50	J. M. 29 M	Dec. 17	C. H. W.	Dr. M. Wheeler	Hysteropexy, 3 sutures	—
51	M. H. 28 M	1907 Jan. 14	Do.	Dr. S. R. Schofield	Hysteropexy, 2 sutures	—
52	A. B. 35 M	Feb. 4	Do.	Dr. D. Halsted	Hysteropexy, 2 sutures	—

General Health.	Local Conditions.	Remarks.	Date.
Fairly good: has left-sided pain: gets depressed: "about the same"	Uterus well slung up: thickening at base of left broad ligament	—	June 19, 1907
Very good: "much better"	Uterus well slung up	Confinement of a girl on Sept. 14 1907. Easy and rapid labour	Mar. 25, 1908
Not very strong, and rather nervous: "weaker"	Uterus well slung up: rather bulky	—	July 9, 1907
Very good: "much better"	Uterus well slung up in good position	Miscarriage at 3 months, March 1907	Nov. 8, 1909
Good, but easily tired: Sept. 10 1908, much less easily tired	Uterus well slung up	—	Oct. 1, 1907
Very good	Uterus well slung up	—	June 10, 1908
"I feel very well": "better"	Uterus well slung up	Has been married 2 years: no children	Oct. 20, 1909
Very good: "a lot better"	Uterus well slung up: ovaries prolapsed	Miscarriage at 3½ months, in Oct. 1908. Examined Nov. 12 1908: uterus retroverted, left ovary prolapsed	Oct. 31, 1907
"Very good indeed: I never felt better": "very much better"	Uterus well slung up	—	Mar. 4, 1908
Fairly good: "better"	Uterus well slung up	—	Mar. 3, 1910
Fairly good: "better"	?	—	Mar. 7, 1908
Felt well till pregnancy supervened	Uterus well slung up in good position	"Normal, but slow, confinement, July 13 1908" (Doctor's letter)	Sept. 21, 1908
Poor because of indigestion, but "infinitely better than before operation"	Uterus well slung up	—	Jan. 14, 1908
Very good: "much better"	Uterus well slung up	—	Mar. 24, 1908

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.
53	S. G. 49 M	1907 Mar. 28	P. W. H.	Dr. H. Lloyd Patch	Hysteropexy, 3 sutures	—
54	C. N. 40 S	May 27	C. H. W.	—	Hysteropexy, 3 sutures	—
55	F. W. 42 S	June 26	P.	Dr. S. E. Tench	Hysteropexy, 3 sutures	—
56	M. L. 27 M	Oct. 7	C. H. W.	Dr. W. B. Garvin	Hysteropexy, 2 sutures: curetting: perineorrhaphy	—
57	E. B. 40 M	Oct. 17	P. W. H.	Dr. R. B. Marjoribanks	Hysteropexy, 3 sutures	—
58	M. J. 27 M	Oct. 21	C. H. W.	Dr. E. Philip	Hysteropexy, 3 sutures	—
59	B. M. 25 M	Nov. 7	P. W. H.	Dr. T. D. Forbes	Hysteropexy, 3 sutures	—
60	B. C. 28 S	Nov. 11	C. H. W.	Dr. W. D. Murray	Hysteropexy, 2 sutures	—
61	A. R. 41 S	Dec. 2	Do.	—	Hysteropexy, 3 sutures: curetting	—
62	K. M. 36 M	1908 Feb. 13	P.	Dr. S. M. Buckell	Hysteropexy, 3 sutures: curetting	—
63	C. P. 27 M	Mar. 23	C. H. W.	Dr. McEwan	Hysteropexy, 3 sutures	—
64	G. L. 35 M	April 9	P. W. H.	—	Hysteropexy, 3 sutures	—
65	M. S. 26 S	April 13	C. H. W.	—	Hysteropexy, 2 sutures	—
66	A. B. C. 25 M	April 30	P. W. H.	Dr. H. Distin	Hysteropexy, 3 sutures: perineorrhaphy	—

General Health.	Local Conditions.	Remarks.	Date.
Very weak: "worse"	(Patient not seen)	—	Feb. 24, 1908
"Not very good at present: much better sometimes"	Uterus well slung up	—	Nov. 1, 1909
"Very good: infinitely better"	Uterus well slung up in good position	—	June 22, 1908
"My general health is better than it has been for years"	Not seen (patient in Colombo)	—	Nov. 15, 1909
Indigestion: "better in some ways, but weaker"	Uterus well slung up in good position	—	Oct. 21, 1908
Good: better	Uterus lies a little to the right, large and rather flexed back	—	July 5, 1909
Very good: "much better"	Uterus well slung up in good position	Miscarriage at 6 weeks, Nov. 1908. Normal confinement of a girl Dec. 13 1909	Feb. 15, 1910
Has suffered from dilated stomach and diarrhœa: otherwise better: dysmenorrhœa has gone	Uterus well slung up in good position	—	Oct. 21, 1909
Very good, but dysmenorrhœa is very severe	Uterus completely retroverted	—	Oct. 28, 1909
"Perfectly well: fitter than I have ever been in my life"	Uterus well slung up	Normal confinement of a boy, Aug. 31 1909	Dec. 9, 1909
"Very good: never felt better in my life"	Uterus well slung up in good position	—	Nov. 4, 1909
For years has had weakness and want of energy: better since the operation	Uterus bulky: well slung up in good position	—	July 7, 1909
Indifferent: has had 2 years' amenorrhœa	Uterus slightly deviated to the right: ? attached by a band.	—	Oct. 11, 1909
Very good: "very much better"	Uterus well slung up in good position: perineum sound	—	June 11, 1909

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.
67	M. B. 35 M	1908 May 4	C. H. W.	Dr. G. C. B. Miéville	Hysteropexy, 3 sutures	—
68	O. H. 29 M	May 11	Do.	—	Hysteropexy, 3 sutures	—
69	L. H. 28 M	May 15	P.	Dr. S. R. Schofield	Hysteropexy, 3 sutures : perineorrhaphy	—
70	C. B. 35 M	May 21	P. W. H.	Dr. F. Jagger	Hysteropexy, 3 sutures	—
71	N. B. 31 S	May 29	P.	Dr. J. S. Maynard Dr. E. Smallwood	Hysteropexy, 3 sutures	—
72	J. C. 26 M	June 1	C. H. W.	Dr. T. D. Forbes	Hysteropexy, 3 sutures	—
73	M. A. H. G. 28 M	June 4	P. W. H.	Dr. H. E. Powell	Hysteropexy, 3 sutures : curetting	—
74	G. G. 32 M	July 17	P.	Dr. G. F. Sydenham	Hysteropexy, 3 sutures : curetting	—
75	J. G. 28 M	Sept. 24	P. W. H.	Dr. J. E. B. Wells	Hysteropexy, 3 sutures : curetting : trachelorrhaphy : perineorrhaphy	—
76	A. B. 23 M	Oct. 14	Do.	Dr. G. P. Chappel	Hysteropexy, 3 sutures	—
77	E. B. 32 M	Oct. 26	C. H. W.	—	Hysteropexy, 3 sutures	—
78	E. C. 34 M	Oct. 29	P. W. H.	—	Hysteropexy, 3 sutures	—
79	N. R. 30 S	Nov. 26	Do.	Dr. G. Plaister	Hysteropexy, 3 sutures : curetting	—

Wound.	General Health.	Local Conditions.	Remarks.	Date.
—	Very well indeed: better	Uterus well slung up	Normal confinement of a boy, Oct. 16 1909	Mar. 2, 1910
—	Very good: "a great deal better"	Uterus well slung up in good position	Normal confinement of a boy, Aug. 7 1909	Sept. 8, 1909
—	Very much the same	Not seen	Now 4 months pregnant	April 21, 1910
—	Poor because of indigestion: was much better until an attack of pleurisy last summer	Uterus well slung up	—	Feb. 26, 1910
—	Very good	Uterus normal size: good position: ? short ligament	—	Mar. 7, 1909
—	Fair: indigestion: better	Not seen (patient in Bengal)	—	June 1, 1909
—	Very good: till 2 or 3 months ago, better than for years: since then, much family trouble	Uterus well slung up	—	Mar. 2, 1910
—	Very good: better	Uterus in good position: large: ? threatened abortion	Premature confinement at 6 months, Dec. 1909: child weighed 2 lbs.	July 7, 1909
—	Was well till she became pregnant: since then poorly, but better and stronger than before	Uterus well slung up: cervix well united: perineum good	Normal confinement of a girl, Oct. 3 1909	Feb. 14, 1910
—	Has been in fairly good health	Not seen	Is 7½ months pregnant N.B. Normal confinement May 5, 1910	Feb. 7, 1910
—	Good: better than before	Uterus well slung up in good position	—	Oct. 21, 1909
—	"Pretty fair: better than before"	Uterus well slung up	Normal confinement of a boy, July 28 1909	Mar. 18, 1910
—	Patient developed carcinoma between the bladder and cervix. Pan-hysterectomy with resection of part of the bladder wall was done on May 13th, 1909.			—

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.	Ge
80	A. R. 33 S	1908 Nov. 30	C. H. W.	—	Hysteropexy, 3 sutures	—	Was we in Ja then b
81	E. K. 34 S	Dec. 17	P.	Dr. W. McQuiban	Hysteropexy, 3 sutures	—	Very g
82	A. D. 34 M	1909 April 5	C. H. W.	Dr. R. B. Marjoribanks	Hysteropexy, 2 sutures: appendicectomy	—	Good:
83	A. B. 22 S	April 29	P. W. H.	Dr. E. Philip	Hysteropexy, 3 sutures	—	Good e gestion stones
84	J. O. 37 M	April 29	Do.	—	Hysteropexy, 3 sutures	—	Good, weak:
85	K. E. 36 M	May 17	C. H. W.	Dr. W. Murison	Hysteropexy, 3 sutures: trachelorrhaphy: anterior colporrhaphy	S. A.	Good, b much
86	M. C. 47 W	May 21	P.	Dr. W. McQuiban	Hysteropexy, 3 sutures	—	Very g

Wound.	General Health.	Local Conditions.	Remarks	Date.
—	Was well till influenza in January: since then bad with nerves	Uterus well slung up in good position	—	Dec. 1, 1909
—	Very good: better	Uterus well slung up	—	May 4, 1910
—	Good: better	Uterus well slung up	—	Mar. 17, 1910
—	Good except for indigestion: has gall-stones: better	Uterus well slung up	Cholecystectomy for gall-stones was done on April 25 1910	Mar. 19, 1910
—	Good, still rather weak: much better	Uterus well slung up	—	Dec. 11, 1909
S. A.	Good, but easily tired: much better	Uterus well slung up: cervix not united: no cystocele	—	Mar. 22, 1910
—	Very good: better	Uterus well slung up	—	May 4, 1910

TABLE T. Hysteropexy. (b) For Fixed Retroversion.

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
1	E. F. 34 S	1898 Sept. 16	C. H. W.	—	Hysteropexy, 2 sutures	—
2	E. G. 36 M	Nov. 21	Do.	—	Hysteropexy, 2 sutures	—
3	M. K. M	1899 June 26	Do.	—	Hysteropexy, 2 sutures	—
4	E. L. 29 S	1901 Dec. 9	Do.	—	Hysteropexy, 2 sutures	—
5	E. D. 30 M	1902 Jan. 30	P.	Dr. G. Bower	Hysteropexy, 3 sutures	—
6	E. P. 32 M	1903 June 22	Do.	Dr. Dunbar Brunton	Hysteropexy, 2 sutures	—
7	V. S. 28 M	Oct. 21	Do.	—	Hysteropexy, 2 sutures	—
8	E. R. 42 M	Sept. 15	P. W. H	Dr. A. Bowie	Hysteropexy, 2 sutures: curetting: colpo-perineorrhaphy	—
9	C. L. 32 M	1904 Oct. 10	C. H. W.	Mr. J. Howell Evans	Hysteropexy, 2 sutures: right salpingostomy	—
10	M. T. 43 S	1905 April 13	P. W. H.	—	Hysteropexy, 3 sutures	—
11	M. A. 43 M	May 1	C. H. W.	—	Hysteropexy, 3 sutures	—
12	K. P. 28 S	Nov. 9	P. W. H.	Dr. H. Alexander	Hysteropexy, 3 sutures	—
13	E. H. 29 M	Nov. 23	Do.	—	Hysteropexy, 2 sutures	—

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	Very good: "better"	Uterus well slung up in good position	Married in 1900. ? Miscarriage at 3 months, Feb. 1905	Nov. 23, 1905
—	Very good: "much better"	Uterus in good position: ? whether attached by apposition or short band	—	Feb. 2, 1906
—	The right appendages had to be removed for salpingo-oöphoritis on December 16, 1901. Uterus found firmly slung up to the abdominal wall by a short stout band			
—	Very good: "much better"	Uterus in good position: some mobility: ? short peritoneal band	—	Feb. 14, 1906
—	Good: "much better than it was"	Uterus in excellent position	—	Nov. 14, 1903
—	Very good: "much better all round"	Uterus well slung up	—	Mar. 26, 1906
—	—	Uterus anteflexed and close to the abdominal wall: on the left, a distended tube (report by Dr. A. Flockemann)	—	Mar. 15, 1910
—	Moderate	Return of displacement	Refixing of the uterus and myomectomy on March 2 1905	Feb., 1905
—	Poor: suffers from nervous dyspepsia: "much better than before operation"	Uterus well slung up	—	Mar. 20, 1908
—	Weak: "same as before"	Uterus in good position	—	July 1, 1906
—	"A lot better: not like the same person"	Uterus well slung up	—	Mar. 9, 1906
—	"Ever so much better," but has been run down and nervous	Uterus well slung up	—	July 25, 1907
—	Good: "better"	Uterus well slung up	—	Feb. 25, 1908

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.
14	E. K. 38 M	1906 May 14	C. H. W.	Dr. A. Hoffman	Hysteropexy, 2 sutures	—
15	A. M. 24 S	1907 Mar. 4	Do.	Dr. J. Wood	Hysteropexy, 2 sutures	—
16	D. H. 23 S	July 1	Do.	Dr. T. Jackson	Hysteropexy, 2 sutures	—
17	E. W. 37 M	1908 Jan. 16	P. W. H.	—	Hysteropexy, 2 sutures: left salpingostomy	H.
18	E. S. 27 M	Feb. 3	C. H. W	Dr. R. W. Mayston	Hysteropexy, 3 sutures: appendicectomy	—
19	M. T. 26 M	June 22	Do.	Dr. Townsend Barker	Hysteropexy, 3 sutures: left salpingostomy	—
20	I. H. 39 S	Sept. 5	P.	—	Hysteropexy, 3 sutures: resection of cyst in left ovary: appendicectomy	—
21	A. M. H. 34 M	Nov. 30	C. H. W.	Dr. W. D. Murray	Hysteropexy, 3 sutures: appendicectomy	—

Wound.	General Health.	Local Conditions.	Remarks.	Date.
—	Poor: "if anything, worse"	Uterus well slung up	—	Mar. 25, 1908
—	"Feeling perfectly well"	Uterus well slung up	In May 1909, after having been in excellent health for 8 months, she had a severe jolt and displaced the uterus: she went into Margate Hospital, where a hysterectomy was done	Sept. 26, 1908
—	Good: gets tired owing to menorrhagia: better	Uterus well slung up in good position	—	Oct. 11, 1909
H.	Good: very cheerful: better	Uterus in good position	Radical cure of scar hernia, Jan. 14 1909: the uterus was found slung up by a band 2 cm. long	Feb. 5, 1910
—	Poor: had bad illness 5 months ago	Uterus well slung up in good position: swelling left side of pelvis (? E. U. G.)	—	Nov. 6, 1909
—	Moderate: languid	Uterus well slung up in good position: left ovary large and low: right normal	—	Nov. 2, 1909
—	Good: better	Uterus well slung up	—	June 4, 1909
—	Very good: "much better"	Uterus well slung up in good position	—	Oct. 21, 1909

TABLE T. Hysteropexy. (c) For Prolapse.

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.
1	C. W. 50 W	1901 Mar. 26	P. W. H.	—	Hysteropexy: radical cure of umbilical hernia	—
2	L. L. 41 M	1902 July 17	Do.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
3	E. W. 23 M	Dec. 15	C. H. W.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
4	A. S. 39 M	1903 Feb. 12	P. W. H.	Dr. R. B. Marjoribanks	Hysteropexy, 2 sutures: perineorrhaphy	—
5	L. C. 44 M	Feb. 12	Do.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
6	E. H. 58 M	April 2	Do.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
7	A. S. 39 M	April 30	Do.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
8	C. B. 23 M	Nov. 12	Do.	Dr. L. P. Gordon	Hysteropexy, 2 sutures: perineorrhaphy	—
9	C. O. 37 M	1904 May 31	P.	—	Hysteropexy: curetting: perineorrhaphy	—
10	A. K. 38 M	Aug. 18	P. W. H.	Dr. H. F. Staunton	Hysteropexy, 2 sutures: perineorrhaphy	—
11	H. C. 35 M	Sept. 14	P.	Dr. J. B. Wallace	Hysteropexy, 2 sutures: anterior colporrhaphy: perineorrhaphy	—
12	M. M. 21 M	Sept. 15	P. W. H.	—	Hysteropexy: anterior colporrhaphy: perineorrhaphy	—
13	A. T. 29 M	1905 June 22	Do.	Dr. R. B. Marjoribanks	Hysteropexy, 3 sutures: perineorrhaphy	—

General Health.	Local Conditions	Remarks.	Date.
Fairly good, except for sick turns: "much better"	Uterus well slung up: slight cystocele	—	Mar. 18, 1908
Has not felt well last few months: previously much better: looks ill	Uterus well slung up: perineum sound	Miscarriage at 2 months, 6 months after operation	July 12, 1907
"Better than ever I have been"	Uterus well slung up: perineum well united and complete	—	Feb. 8, 1906
Very good: "much better"	Uterus well slung up: anterior part of perineum has stretched somewhat	Miscarriage at 3 months, Jan. 1904	Mar. 28, 1906
Very much better: "feel quite different"	Uterus well slung up: perineum rather stretched: vaginal walls bulge	—	Mar. 16, 1906
Patient died later of carcinoma of the rectum.	When last seen the uterus was in good position		
Moderate: much better than before operation: "I felt a different woman"	Uterus well slung up in good position: large: apparently the seat of a fibroid: perineum sound	—	Jan. 21, 1910
Very good	Uterus well slung up: cervix and perineum both tore at confinement	Confinement on Oct. 22 1904. Delay caused by rigid cervix. Delivery with forceps	Nov. 25, 1904
Exceedingly well till pregnancy supervened	Not seen since confinement	Confinement on Dec. 23 1905: natural	July 26, 1906
Moderate: "better till 2 months ago"	Uterus well slung up: perineum good	Confinement of a girl, May 20 1908	Jan. 12, 1910
Good: "better till a month ago"	Uterus well slung up: perineum good: return of cystocele	—	Sept. 14, 1905
Varies: is underfed: "better till last confinement"	Uterus well slung up: some relaxation of vaginal walls	Has had 2 confinements since operation: these and the last one before operation were all at 7 months and "cross births"	July 18, 1907
"Better and stronger: I am keeping very well"	Uterus well slung up: perineum good	—	April 7, 1908

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound	Gen
14	M. W. 40 M	1905 Aug. 20	P.	Dr. K. Frazer	Hysteropexy, 3 sutures: perineorrhaphy	—	"Fair, better
15	A. L. 40 M	Sept. 14	P. W. H.	Dr. J. Crawford	Hysteropexy, 3 sutures: perineorrhaphy	—	Good: down hæmor 1907:
16	N. C. 35 M	1906 Jan. 29	C. H. W.	Dr. E. J. Pritchard	Hysteropexy: 3 sutures: perineorrhaphy	—	"Much nerves
17	E. A. 50 S	Mar. 3	P.	Dr. W. J. Daly	Hysteropexy, 3 sutures	—	Very better
18	M. D. 48 M	Oct. 1	C. H. W.	—	Hysteropexy: 3 sutures: perineorrhaphy	—	Patien hæ
19	J. H. 60 S	Oct. 15	Do.	Dr. May Hawkes	Hysteropexy: 3 sutures: perineorrhaphy	—	"Very and st
20	E. H. 34 M	Oct. 18	P. W. H.	Dr. W. H. Paine	Operation for procidentia and pelvic tumour: the latter was found to be the right kidney firmly fixed in the hollow of the sacrum: right horn of the uterus undeveloped: right ovary and tube present, but small: the left round ligament was very thick, and by this the uterus was slung up to the abdominal wall by 2 sutures	—	Very and better
21	D. S. 46 M	1907 Feb. 17	Sutton Hospital	Dr. A. A. Miller	Hysteropexy: 3 sutures: curetting: anterior colporrhaphy: perineorrhaphy	—	Very about work twice was"
22	A. S. 41 M	April 2	C. H. W.	Dr. C. J. Martin	Hysteropexy: 3 sutures: perineorrhaphy	—	Fairly indig
23	L. T. 39 S	April 29	Do.	Dr. J. W. Coles	Hysteropexy: 3 sutures: amputation of the cervix for hyperplasia of the supra-vaginal portion	—	Very bette
24	A. J. 44 M	June 24	Do.	Dr. T. Jackson	Hysteropexy: 3 sutures: perineorrhaphy	—	"Very much

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	"Fair, but much better"	Uterus well slung up: perineum good: some cystocele	—	June 27, 1906
—	Good: but was pulled down by operation for hæmorrhoids, Nov. 1907: "much better"	Uterus well slung up: large: perineum good	—	Feb. 18, 1908
—	"Much better; but nerves are bad"	Uterus well slung up: perineum good: a little rectocele	Confinement of a girl, March 1 1908. Labour 3 hours: $CHCl_3$, and forceps	May 8 1908
—	Very good: "much better"	Uterus well slung up: cervix low: some cystocele and rectocele: ring *in situ*	—	April 10, 1908
—	Patient had a hysterectomy done on August 23, 1907, on account of hæmorrhage.			Mar. 5, 1908
—	"Very well: better and stronger"	Uterus well slung up in good position: perineum sound	Patient died later of pneumonia following an operation for hernia	Mar. 1, 1907
—	Very good: "better, and can get about better"	Uterus well slung up: perineum deficient: vaginal walls lax	Confinement on June 17 1907. Forceps, but otherwise normal. (N.B.—Patient has now had 3 children, 1 boy and 2 girls)	Oct. 5, 1907
—	Very good: "I get about and do my work nicely: "I'm twice the woman I was"	Uterus well slung up: perineum sound: no cystocele	—	May 18, 1908
—	Fairly good: has indigestion: "better"	Uterus well slung up: slight tendency to cystocele: patient wears a pessary	—	April 6, 1908
—	Very good: "much better"	Uterus well slung up: cervix is away, flush with vaginal vault: stump normal	—	Mar. 11, 1908
—	"Very good: very much better"	"I feel satisfied that everything is quite right" (letter: patient in New Zealand)	—	March 25, 1910

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
25	E. T. 39 M	1907 Oct. 23	P.	Dr. J. Halahan Dr. Waterman	Hysteropexy : 3 sutures : curetting : perineorrhaphy	—
26	M. Y. 39 M	Nov. 28	P. W. H.	—	Hysteropexy : 3 sutures : perineorrhaphy	—
27	E. J. 32 M	1908 Feb. 6	Do.	—	Hysteropexy : 3 sutures : perineorrhaphy	—
28	M. M. 46 M	Feb. 27	Do.	—	Hysteropexy : 3 sutures : perineorrhaphy	—
29	M. B. 47 M	Sept. 6	P.	Dr. K. Frazer	Hysteropexy : 3 sutures : nephrorrhaphy at the same time	—
30	E. B. 35 M	Sept. 14	C. H. W.	Dr. P. Galloway Dr. Arnott	Hysteropexy : 3 sutures : colporrhaphy : perineorrhaphy	—
31	E. H. 38 M	Nov. 18	P.	Dr. E. Philip	Hysteropexy : 3 sutures : appendicectomy	—
32	M. P. 31 M	1909 Feb. 25	P. W. H.	Dr. Montague Miller	Hysteropexy : 3 sutures : anterior and posterior colporrhaphy : perineorrhaphy	—
33	E. U. 48 W	May 10	C. H. W.	—	Hysteropexy : 4 sutures : curetting : anterior colporrhaphy : perineorrhaphy	—
34	A. C. 42 M	May 27	P.	Dr. W. H. Paine	Hysteropexy : 3 sutures : anterior colporrhaphy : perineorrhaphy	—

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	Doctor's letter: "I can testify to the great benefit that she has derived from your intervention."			Feb. 3, 1908
—	Very good. "I am a different woman: I ought to have had it done before"	Uterus well slung up: perineum very good	Miscarriage at 2 months, in May 1909, from a sudden fright, seeing her little boy apparently falling into the water	Feb. 15, 1910
—	Pretty fair	Uterus well slung up: cystocele	—	Mar. 1, 1910
—	"Very good till 3 months ago: much better"	Uterus well slung up in good position: rather large: perineum sound	—	July 20, 1909
—	"Very good indeed: I feel quite different": gained 19 lbs. weight, now 8 st. 13 lbs.	Uterus well slung up in good position: kidney well slung up	—	Dec. 2, 1909
—	Not very well: pain left side	Uterus well slung up in good position: perineum sound: no return of cystocele	Left appendages removed, Feb. 28 1910, for prolapsed and cystic ovary and varix of left broad ligament	Mar. 26, 1909
—	"Ever so much better: I do not feel like the same being"	Uterus well slung up in good position	—	Oct. 21, 1909
—	"Better than I have felt all my lifetime"	Uterus well slung up: perineum sound: no cystocele or rectocele	Normal confinement, Jan. 7, 1910	May 15, 1910
—	Very good: "a different woman altogether"	Uterus well slung up: bulky: perineum very good: tendency to cystocele	—	Mar. 21, 1910
—	"Quite well: much better"	Uterus well slung up: perineum sound: no cystocele: rather large rectocele	—	Mar. 19, 1910

TABLE T. (d) For Procidentia.

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
1	A. K. 35 M	1902 May 15	P. W. H.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
2	A. B. 35 M	Oct. 2	Do.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
3	E. H. 35 S	1903 Feb. 10	Bolingbroke Hospital	Dr. P. R. Dodwell	Hysteropexy, 2 sutures: amputation of the cervix for hyperplasia of the vaginal portion	—
4	D. B. 52 W	April 3	C. H. W.	Dr. E. C. Garman	Hysteropexy, 2 sutures: perineorrhaphy	—
5	F. M. 30 M	1904 May 12	P. W. H.	—	Hysteropexy, 2 sutures: perineorrhaphy	—
6	C. B. 26 M	1905 Oct. 26	Do.	Dr. R. S. Pearson	Hysteropexy: 3 sutures: perineorrhaphy	—
7	J. H. 60 S	Nov. 27	C. H. W.	Dr. May Hawkes	Hysteropexy: 3 sutures: radical cure of umbilical hernia	—
8	E. G. 47 M	Dec. 11	Do.	—	Hysteropexy: 3 sutures: colpo-perineorrhaphy	—
9	A. S. 42 M	1906 July 12	P. W. H.	Dr. D. Petty	Hysteropexy, 3 sutures: shortening of both utero-sacral ligaments: perineorrhaphy	—
10	E. H. 41 M	1907 Feb. 14	Do.	—	Hysteropexy: 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—
11	F. F. 38 M	May 30	Do.	—	Hysteropexy: 3 sutures: perineorrhaphy	—
12	B. G. 37 M	1908 Mar. 12	Do.	Dr. H. Powell	Hysteropexy: 3 sutures: shortening of right utero-sacral ligament: curetting: trachelorrhaphy, perineorrhaphy	—

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	Very good: "better than for years"	Uterus well slung up: some degree of cystocele and rectocele	? Miscarriage at 9 weeks, some months after operation. Now 6 months pregnant	April 23, 1910
—	Very good till 6 months ago: menstruation too free last 2 years	Uterus well slung up in good position: large and irregular as if from fibroids: perineum sound: cystocele	—	Sept. 8, 1909
—	Was "wonderfully well" till she developed a gastric ulcer 2 years ago	Uterus well slung up: cervix looks healthy	—	July 25, 1906
—	"Good: Mrs. B. has greatly benefited by her operation" (doctor's letter)	Tendency to prolapse, but well maintained by ordinary pessary	—	Mar. 7, 1906
—	Very good: "better"	Total procidentia; uterus retroverted and prolapsed: perineum stretched	—	Feb. 19, 1908
—	Good: could not formerly sit down comfortably, as the parts came right out	Uterus well slung up: perineum good	—	July 27, 1906
—	Good: "better and stronger"	Uterus partly prolapsed	Uterus refixed, Oct. 15, 1906	Oct. 1, 1906
—	Very good: "a lot stronger"	Uterus well slung up: small: atrophied	—	Nov. 19, 1907
—	Good, but easily tired: much better	Not seen since confinement	Confinement on Jan. 19 1908: slow, but otherwise normal: a little tear of the perineum	Mar. 1, 1908
—	Very good: "better and stronger"	Uterus well slung up: perineum sound: no "slack" in either vaginal wall	—	Feb. 25, 1908
—	Very good: much better: can walk well now	Uterus well slung up: perineum good	—	Feb. 10, 1910
—	Very good: "wonderfully better after operation"	Uterus well slung up in good position: rectocele: perineum good	Normal confinement of a girl, June 6, 1909	Nov. 10, 1909

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.	Ge
13	S. M. 23 M	1908 Mar. 26	P. W. H.	—	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—	Very g
14	C. T. 37 M	April 13	C. H. W.	—	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—	Good: before
15	S. C. 53 M	April 14	P.	Dr. Fawssett	Hysteropexy, 4 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—	Fairly quite able t well"
16	C. M. 65 M	April 30	P. W. H.	Dr. H. Powell	Hysteropexy, 2 sutures: perineorrhaphy	H.	Good:
17	C. F. 78 W	May 21	P.	Dr. Todd-White	Hysteropexy, 3 sutures	—	Good:
18	K. B. 34 M	July 12	Do.	Dr. Cobbledick	Hysteropexy, 3 sutures: curetting: anterior and posterior colporrhaphy: perineorrhaphy	—	"Good
19	R. S. 38 M	Sept. 21	C. H. W.	—	Hysteropexy: 3 sutures: curetting: anterior and posterior colporrhaphy: perineorrhaphy	—	Very better
20	E. P. 30 M	Oct. 22	P. W. H.	Dr. W. Love Dr. West	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—	Very g
21	C. G. 48 W	Oct. 20	P.	Dr. R. Fell	Hysteropexy: 4 sutures: amputation of cervix for hyperplasia: perineorrhaphy	—	Good:
22	M. C. 54 M	Nov. 30	C. H. W.	—	Hysteropexy, 3 sutures: anterior colporrhaphy: perineorrhaphy	—	Not suffer lung a but d
23	C. G. 36 M	Dec. 17	Do.	—	Hysteropexy, 3 sutures: union of separated recti: anterior and posterior colporrhaphy: perineorrhaphy	—	Very better
24	A. H. 29 M	1909 Mar. 15	Do.	Dr. C. Dudley Garrett	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy		Good, e ness: walk

Wound.	General Health.	Local Conditions.	Remarks.	Date.
—	Very good: better	Uterus partly back: ? attached by band: perineum good: only slight cystocele	—	Feb. 14, 1910
—	Good: better than before	Uterus well slung up in good position: perineum sound: some degree of cystocele	Has had 2 miscarriages, self-induced, at 2 and 3 months	April 28, 1909
—	Fairly well: "it is quite a treat to be able to get about so well"	Uterus well slung up in good position: no cystocele: large rectocele	—	Nov. 1, 1909
H.	Good: "too energetic"	Uterus well slung up in good position: perineum sound	—	May 5, 1909
—	Good: better	Parts keeping well up	—	Nov. 15, 1909
—	Good: much better"	Uterus well slung up in good position: anterior vaginal wall has elongated considerably; perineum sound	—	April 20, 1909
—	Very good: "much better"	Uterus well slung up in good position: perineum sound: no return of cystocele	—	Mar. 26, 1909
—	Very good: better	Not seen	—	Feb. 10, 1910
—	Good: much better	Not seen	—	April 25, 1910
—	Not very strong: suffers from weak lung and rheumatism: but decidedly better	Uterus well slung up in good position: perineum sound: no rectocele	—	Dec. 27, 1909
—	Very good: much better	Uterus well slung up: perineum good: recti firm: slight tendency to cystocele	—	Feb. 11, 1910
	Good, except for weakness: better: can walk better	Uterus well slung up: perineum sound: no cystocele	—	April 22, 1910

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
25	M. T. 50 M	1909 April 22	P.W. H.	Dr. A. Southcombe	Hysteropexy, 3 sutures: anterior colporrhaphy: perineorrhaphy	—
26	E. B. 37 S	April 29	Do.	—	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—
27	M. A. H. 39 M	June 10	Do.	—	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—
28	A. M. 26 M	June 21	C. H. W.	Dr. H. Downes	Hysteropexy, 3 sutures: anterior and posterior colporrhaphy: perineorrhaphy	—
29	E. B. 62 M	July 8	P. W. H.	Dr. E. C. Curtis	Hysteropexy, 3 sutures: anterior colporrhaphy: perineorrhaphy	—

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	Good, except for indigestion: better: can get about better	Uterus well slung up: perineum sound: rectocele: no cystocele	—	April 1, 1910
—	Within 6 months there was an apparently complete return of the procidentia. Patient was a rachitic dwarf with markedly flattened pelvis. On November 25, 1909, operation: fundus was firmly fixed to abdominal wall, cervix presenting at vulva. Panhysterectomy was done, and the top of the vagina sutured to the abdominal wall.			
—	Fair: has flushes and sweats: better, could not walk before	Uterus well slung up: perineum and anterior vaginal wall good	—	Jan. 21, 1910
—	Very good: much better	Uterus well slung up: perineum and anterior vaginal wall good	—	Mar. 18, 1910
—	"Pretty good health: much better"	Uterus well slung up: perineum sound: slight rectocele: no cystocele	—	Mar. 22, 1910

TABLE U.

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.	Gen
1	F. H. 31 M	1898 Sept. 19	C. H. W.	Dr. C. H. Wakeham	Retroversion with adhesions: right cystic ovary	—	Very better
2	R. H. 40 M	1900 Aug. 10	P. W. H.	—	Chronic retroversion: left cystic ovary	—	"On the
3	L. W. 28 M	1902 Sept. 18	Do.	—	Chronic retroversion: left salpingitis	—	Good:
4	R. R. 28 M	Sept. 22	C. H. W.	—	Chronic retroversion: (left appendages previously removed for tubal pregnancy)	S. A.	Weak:
5	R. Q. 32 M	Sept. 25	P. H. W.	Dr. R. B. Marjoribanks	Retroversion with firm adhesions: left small ovarian cyst	—	Very better
6	M. G. 27 M	Oct. 2	Do.	—	Retroversion with adhesions: two blood-cysts in right ovary: marked varicocele, right broad ligament	—	Pretty "fits"
7	A. P. 29 M	1903 Feb. 6	Do.	Dr. D. M'Askie	Prolapse, left cystic ovary: perineorrhaphy	—	"I fe what operat
8	S. S. 42 M	April 30	Do.	—	Retroversion and prolapse: left ovarian cyst: perineorrhaphy	—	Good:
9	E. C. 23 M	Oct. 5	C. H. W.	—	Retroversion with adhesions: right ovarian cyst	—	Good, left s
10	H. K. 47 W	1904 Jan. 29	P.	Dr. R. S. Pearson	Chronic retroversion: right cystic ovary	S.A: H	Very differe have years
11	L. H. 26 S	Feb. 18	P. W. H.	Dr. Angell James	Chronic retroversion: right cystic ovary	—	Very better
12	J. B. 30 M	May 1	P.	Dr. H. Lloyd Patch Dr. Lawson Smith	Retroversion with adhesions: cystic right ovary	—	Very quite

Wound.	General Health.	Local Conditions.	Remarks.	Date.
—	Very good: "much better"	Uterus well slung up: left ovary normal	Confinement of a girl, July 8 1902. Dyspareunia before operation, not since	Feb. 1, 1906
—	"On the whole better"	Uterus well slung up: perineum deficient: cystocele: right ovary normal	Less dyspareunia since operation	Feb. 20, 1906
—	Good: "much better"	Uterus well slung up: right ovary normal	(a) Confinement of a boy, Aug. 1904: natural. (*b*) Confinement of a boy, Sept. 16 1906. Forceps for occipito-posterior: much hæmorrhage. (*c*) Miscarriage at 3 months, Oct. 1907	Dec. 19, 1907
S. A.	Weak: "weaker"	Uterus well slung up: right ovary normal	Used to have dyspareunia: better after first operation, and better still after second	Oct. 13, 1905
—	Very good: "much better"	Uterus well slung up: thickening in position of distal end of tube and ovary	—	Mar. 14, 1908
—	Pretty good: has "fits": "much better"	Uterus well slung up: left ovary and tube rather large	Has had dyspareunia since operation, and feeling and desire have been less	Feb. 5, 1906
—	"I feel excellent to what I did before the operation"	Uterus well slung up	(*a*) Confinement of a girl, April 1 1904: natural. (*b*) Confinement October 26, 1906: quick and quite natural. (*c*) Confinement February 26, 1909; rather prolonged, but quite natural	July 17, 1906
—	Good: "better"	Uterus well slung up: right ovary normal: perineum sound	—	Mar. 20, 1906
—	Good, but gets pain in left side	Uterus well slung up: left ovarian cyst: (operated upon subsequently)	Operation for left salpingo-oöphoritis, Oct. 31 1904	Sept. 30, 1904
S.A: H	Very good: "very different to what I have been for many years"	Uterus well slung up: left ovary normal	Operation for scar hernia, Nov. 15, 1904	Nov. 1, 1904
—	Very good: "much better"	Uterus well slung up: left ovary normal	(*a*) Confinement of a boy, July 29 1905. (*b*) Confinement of a boy, July 24 1906. Both labours easy and rapid: babies born before doctor's arrival	Mar. 20, 1908
—	Very good: "I feel quite different"	Uterus well slung up: left ovary normal	—	Nov. 24, 1905

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.	Gen
13	E. G. 34 M	1904 June 9	P. W. H.	Dr. C. J. Harrison	Double salpingitis with adhesions: adhesion of bladder to fundus: left appendages removed	—	"I have well i since t
14	H. F. 34 M	Dec. 1	Do.	Dr. H. Lloyd Patch	Left tubal pregnancy: cyst in right ovary resected	S. A.	Fairly weak "bette
15	F. G. 27 M	Dec. 1	Do.	Dr. S. E. Tench	Retroversion: right ovarian dermoid	—	"No before less at
16	A. E. 40 M	1905 April 13	Do.	—	Retroversion with firm adhesions: left salpingitis	S. A.	"Very cannot a child
17	C. S. 24 M	May 25	Do.	—	Chronic retroversion: left cystic and prolapsed ovary	—	Good, weak:
18	C. E. 44 M	Oct. 5	Do.	—	Retroversion: appendicitis: right small ovarian cyst: appendicectomy	—	Modera attack a lot o so wel
19	S. M. 31 M	Dec. 14	Do.	—	Chronic retroversion: left small ovarian cyst	—	Very g
20	A. R. 27 M	1906 Jan. 8	C. H. W.	—	Retroversion with adhesions: left cystic ovary	—	"I felt had th
21	F. G. 43 M	Jan. 29	Do.	—	Total procidentia: right hydrosalpinx: anterior colporrhaphy: colpo-perineorrhaphy	S. A.	Fairly tired:
22	R. D. 38 M	Feb. 1	P. W. H.	—	Retroversion with adhesions: left hydrosalpinx: myomectomy for fibroid in fundus	—	Very g grumb "Very
23	M. B. 36 W	Feb. 22	Do.	Dr. Basil Price	Retroversion with adhesions: double salpingitis: right tube and ovary removed	—	Modera tired: same"
24	M. B. 35 M	Feb. 26	C. H. W.	Dr. K. Frazer Dr. Ross	Retroversion with adhesions: double salpingitis: left ovary and both tubes removed	—	Variabl very better
25	M. G. 33 M	June 18	Do.	Dr. E. Philip	Retroversion and prolapse: left hydrosalpinx (ovary left)	—	"Very "bette been f

Wound.	General Health.	Local Conditions.	Remarks.	Date
—	"I have never been so well in my life as since the operation"	Uterus well slung up: feels bulky: right appendages feel normal	—	June 27, 1907
S. A.	Fairly good: rather weak in the chest: "better"	Uterus well slung up: right ovary normal	—	Mar. 19, 1908
—	"No stronger than before, but I suffer less at the periods"	Not seen: letter from the patient, from New York	—	Mar. 26, 1908
S. A.	"Very much better: I cannot remember from a child being so free"	Uterus well slung up: left appendages normal	Used to have dyspareunia before operation: none since, and so more feeling	July 10, 1906
—	Good, but feeling weak: "much better"	Uterus in good position: attachment to abdominal wall feels lengthened: right ovary normal	Had dyspareunia for 2 years before operation: none since	April 26, 1906
—	Moderate: has nervous attacks, and has had a lot of trouble: "not so well"	Uterus lying a little back: ? attachment by a band: left ovary normal	—	April 2, 1908
—	Very good: "better"	Uterus well slung up: right ovary normal: 2 Bartholinian cysts	—	July 26, 1906
—	"I felt beautiful till I had the baby"	Uterus well slung up: right ovary normal	Confinement of a boy, Feb. 17 1907: natural	Oct. 24, 1907
S. A.	Fairly well: easily tired: "much better"	Uterus well slung up: left appendages normal: perineum sound: small cystocele	—	Oct. 14, 1907
—	Very good: "I can't grumble at all": "Very much better"	Uterus well slung up: normal size: right ovary normal	—	Mar. 22, 1907
—	Moderate: easily tired: "about the same"	Uterus well slung up: bulky: some thickening on the left side	—	Feb. 26, 1908
—	Variable: sometimes very well: "much better"	Uterus well slung up: right ovary normal	Used to have dyspareunia before the operation: none since, and so both desire and feeling have been increased	Dec. 17, 1907
...	"Very well indeed": "better than I have been for years"	Uterus well slung up: right tube and both ovaries normal	—	Mar. 6, 1908

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
26	R. H. 47 W	1906 June 25	C. H. W.	—	Retroversion with adhesions: double salpingitis: removal of left ovary, both tubes and appendix	S. A.
27	E. P. 36 M	June 26	P.	Dr. E. B. Randall	Chronic retroversion: cystic right ovary: hæmorrhoids removed also	—
28	E. H. 60 M	July 26	P. W. H.	—	Total procidentia: right ovarian dermoid	—
29	D. A. 37 M	Nov. 8	Do.	—	Retroversion with adhesions: left salpingitis: right salpingitis with occlusion (removed)	—
30	S. F. 35 W	Nov. 26	C. H. W.	—	Chronic retroversion: right ovarian dermoid	—
31	A. H. 32 M	Dec. 3	Do.	—	Chronic retroversion: left hæmatosalpinx	—
32	A. K. 39 M	1907 Jan. 9	P.	Dr. A. Ogier Ward	Retroversion with adhesions: double salpingitis: removal of right ovary and both tubes	—
33	A. D. 27 M	Feb. 28	P. W. H.	—	Retroversion with adhesions: double salpingitis: removal of right ovary and both tubes: curetting	—
34	J. T. 54 M	April 8	C. H. W.	—	Procidentia: right small ovarian cyst: perineorrhaphy	—
35	M. B. 26 M	June 3	Do.	Dr. Campbell	Chronic retroversion: left cirrhotic ovary	—
36	C. M. 56 M	June 4	P.	—	Chronic retroversion: right ovarian cyst: rectocele and cystocele: anterior colporrhaphy and perineorrhaphy	—
37	M. H. 41 M	June 13	P. W. H.	—	Chronic retroversion: right ovarian cyst	—

Wound	General Health.	Local Conditions.	Remarks.	Date.
S. A.	Fairly good: "gets muddled in the head: a lot better in myself"	Uterus well slung up: right ovary normal	—	Nov. 13, 1907
—	Has had fistulæ in ano: otherwise well	Uterus well slung up: left ovary large and tender	—	Mar. 20, 1908
—	Very good, except for bronchitis: "much better"	Uterus well slung up: left ovary normal: vaginal walls lax	—	July 9, 1907
—	Very good: "much better"	Uterus lying rather back: left ovary normal	—	June 27, 1907
—	Very good: "ever so much better"	Uterus well slung up in good position: left ovary normal	—	Nov. 1, 1909
—	"Very good indeed": "better"	Note on July 9 1909: Uterus normal size, in very good position: right ovary normal	Had dyspareunia before operation: none since. (*a*) Confinement of a boy, Sept. 1907: "a good hard time, but straightforward." (*b*) Confinement of a boy, Oct. 23 1908: "confinement went off very satisfactorily." (*c*) Now pregnant, 4 months	Feb. 3, 1910
—	Very good: "a new woman"	Uterus well slung up: left ovary normal	—	Jan. 22, 1908
—	"I have felt better since the operation than I have done for years before"	Uterus well slung up: left ovary normal	—	Feb. 14, 1908
—	Fairly good: was much better till a few months ago	Uterus small, well slung up: some cystocele and rectocele: left ovary normal	—	Oct. 13, 1909
—	"Fairly good: very much better than it was"	Uterus well slung up: right ovary normal	Less dyspareunia since operation	June 3, 1908
—	Very good: "I can get about much better"	Uterus small, well slung up: left ovary normal: perineum sound: no cystocele	—	Mar. 18, 1908
—	Very good till 5 weeks ago	Uterus well slung up in good position: left tubal pregnancy	Operation for ruptured left tubal pregnancy, Sept. 16 1909. Uterus slung up by "abdominal ligament," 1 inch long	Sept. 16, 1909

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound
38	M. B. 45 M	1907 Nov. 4	C. H. W.	Dr. Johnstone Harris	Retroversion with adhesions: left hydrosalpinx	—
39	M. F. 26 S	Dec. 9	Do.	Dr. G. Porter Dr. Herbert H. Brown	Chronic retroversion: left cystic and prolapsed ovary	—
40	M. G. 31 M	1908 Jan. 20	Do.	Dr. S. R. Schofield	Chronic retroversion: double salpingitis: right tube occluded: right ovary and tube removed	—
41	N. H. 30 M	Feb. 10	Do.	Dr. Packman	Retroversion: double pyosalpinx: removal of right ovary and both tubes	—
42	C. H. 38 M	Feb. 17	Do.	Dr. S. E. Tench	Chronic retroversion: appendicitis: left tubo-ovarian cyst: right salpingitis: removal of left appendages and appendix: right salpingostomy	—
43	K. T. 33 M	Mar. 16	Do.	Dr. G. W. F. Macnaughton	Retroversion: double salpingitis with occlusion: ovarian cyst in left broad ligament: left ovary and both tubes removed	S. A.
44	E. P. 32 S	April 27	Do.	—	Chronic retroversion: cystic left ovary	—
45	M. W. 47 M	April 30	P. W. H.	Dr. H. Powell	Procidentia: fibroid polypus of cervix: small left ovarian cyst	—
46	E. G. 29 M	July 2	P.	Dr. W. R. Orr	Retroversion with adhesions: cystic left ovary: 3 small fibroids	S. A.
47	B. H. 38 M	July 22	Do.	Dr. R. M. Low	Right hydrosalpinx: 2 uterine fibroids: chronic retroversion and prolapse: deficient perineum	—
48	M. O'C. 30 M	Oct. 14	P. W. H.	—	Retroversion with fixation: right salpingitis with occlusion	—

Wound	General Health.	Local Conditions.	Remarks.	Date.
—	"Fairly good, but easily tired: much better than before"	Uterus in good position (? fixed as with a short band): right ovary normal: vagina atrophied	—	Oct. 9, 1909
—	See Dr. Brown's letter	—	—	Oct. 8, 1909
—	Fairly good: subject to neuralgia and right sacral pain	Uterus well slung up in good position: cervix healthy: left ovary normal	—	Oct. 4, 1909
—	"Always weakly since she was a child: much better since the operation"	Uterus well slung up in good position: bulky: left ovary not enlarged, but tender	—	Oct. 6, 1909
—	"Very good: never felt so well in my life as the last months"	Uterus in good position: attachment to abdominal wall is not felt: right ovary normal	Had dyspareunia before: none since, and so intercourse is more natural	Nov. 3, 1909
S. A.	"Very good: better altogether"	Uterus well slung up in good position: left ovarian cyst, size of fist	—	Oct. 6, 1909
—	Very good for first 6 months: then pain in right side	Uterus well slung up in good position: right appendages enlarged	On Feb. 15, 1909, operation for right salpingo-oöphoritis with adhesions: right tube and half the ovary removed	Feb. 6, 1909
—	"Fairly good: much better: I felt very ill before, and as if all my inside were coming out"	Uterus well slung up in good position: cystocele and rectocele: perineum not very good: right ovary normal	—	Nov. 29, 1909
S. A.	"Good: much better"	"All in healthy condition" (doctor's report)	Normal confinement of a girl, on May 5 1910	May 6, 1910
—	Very good: "very much better"	Uterus normal size, well slung up in good position: left ovary normal	—	July 24, 1909
—	"Very good: much better"	Uterus well slung up in good position: left appendages normal	—	Oct. 12, 1910

Serial No.	Initials. Age. C.S.	Date.	Place.	Doctor.	Operation Notes.	Wound.	G
49	B. R. 23 M	1908 Nov. 12	P. W. H.	—	Retroversion with firm adhesions: double salpingo-oöphoritis: removal left appendages: right salpingostomy	S. A.	"Very bette
50	J. S. 35 M	1909 Feb. 4	Do.	Dr. A. R. Wainwright	Left ovarian blood-cyst: retroversion with dense adhesions of both appendages	—	"I fee much
51	E. W. 48 M	Feb. 8	C. H. W.	—	Retroversion with fixation: left hæmatosalpinx	—	"Very
52	D. C. 27 M	Feb. 11	P. W. H.	Dr. Gurney Thompson	Left tubal abortion: retroversion: left tube alone removed	—	Very week
53	A. D. 46 M	Feb. 18	Do.	Dr. Montague Miller	Chronic retroversion: cystic left ovary with varix left broad ligament	—	"Very bette
54	E. S. 33 M	Mar. 11	Do.	Dr. West	Left suppurating ovarian cyst: double salpingitis, especially left	—	"Very bette
55	L. J. 37 M	June 24	Do.	—	Retroversion with fixation: left hydrosalpinx	—	"Very

Wound	General Health.	Local Conditions.	Remarks.	Date.
S. A.	"Very good: much better"	Uterus well slung up in good position: right ovary prolapsed, but not enlarged	—	Nov. 3, 1909
—	"I feel splendid: very much better"	Uterus well slung up in good position: cystic swelling on right side	Had dyspareunia before operation: none since	Dec. 8, 1909
—	"Very good: better"	Uterus well slung up in good position: right ovary normal	—	Dec. 8, 1909
—	Very good till last few weeks	Uterus size of 6 weeks pregnancy: well slung up in good position: ovaries normal	—	Nov. 2, 1909
—	"Very good: much better"	Uterus well slung up in good position: right ovary normal	—	Dec. 7, 1909
—	"Very good: much better"	Uterus well slung up in good position: right ovary enlarged to size of orange	Had dyspareunia before operation: none since	Dec. 17, 1909
—	"Very good: better"	Uterus well slung up in good position: right appendages normal	Had dyspareunia before operation: none since	Dec. 16, 1909

The Prevention of Ophthalmia Neonatorum with Special Reference to the Teaching of Midwives.

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The controversy which has raged, and is still raging, on the question of the best method for the prevention of blindness from ophthalmia neonatorum is complicated by the different conditions under which births take place. Measures which may be proper when carried out in a modern lying-in hospital where skilled help and every appliance are at hand, may prove unsuitable for use by a midwife working single-handed in the slums.

The Midwives Act of 1902 is effecting a revolution in the treatment of mothers and newly-born children of the poor, by eliminating the irresponsible untrained handy-woman altogether, and by placing the certified midwives under the control of the local supervising authority, to whom they must notify all occasions on which they advise the summoning of a doctor, the causes for such summoning being laid down in the regulations of the Central Midwives Board. One of these occasions is, in the case of the child, the appearance of "inflammation of the eyes, however slight." It is not too much to say that this rule has altered entirely the position of the midwife in regard to ophthalmia neonatorum; in the past she was accustomed to treat inflammation of the eyes in newly-born infants; now she is forbidden to do so under penalty of removal from the roll. It follows that, though before the passing of the Act it may have been permissible to teach her the best methods of treating these cases, now she must be taught that she must not treat them at all. Therefore it is necessary that teachers of midwives should review their teaching in the light of this change of circumstance, and in this article an attempt is made to investigate the different methods of prophylaxis and to find that one which is most suitable for general adoption.

Prophylactic methods may be divided broadly into antiseptic and aseptic. The antiseptic, invariably, but, as I maintain, loosely and incorrectly, associated with the name of Credé, assumes the probability of infection in every case, and pins its faith to strong germicides: the aseptic aims at the prevention of inoculation, and puts nothing into the conjunctival sac unless there is definite reason to fear infection: a third method, of washing out all cases with indifferent fluids, water, saline or boracic lotions, is a compromise between the other two, but for the convenience of discussion, it will be classed with the aseptic for the present.

Of the two schools, the disciples of the antiseptic method are the most clamant. In the opinion of many speakers, particularly at meetings of societies for the blind, the question is settled once and for all by the quotation of Credé's statistics, and by the statement that the compulsory adoption of Credé's method is the one thing necessary to reduce ophthalmia neonatorum to the vanishing point. This faith has gained much credence in the United States of America. Park Lewis and Lucien Howe have been its consistent advocates, and various commissions have recommended its compulsory adoption, but, as far as I am aware, it has been made compulsory by law only in New York City, where the Health Board requires its midwives to instil 1 per cent. solution of silver nitrate into the eyes of all newborn infants.[1] It is significant, however, to find that in an article advocating the compulsory use in public institutions of 2 per cent. solution of silver nitrate for all cases immediately after birth, Lucien Howe says: "It must be admitted that the method recommended by Credé is far from perfect, and not always reliable. A better one may be found to-morrow. But thus far, in the opinion of those most competent to judge, it is the best." And again: "Students and physicians should be made to appreciate the fact that while Credé's method is the best thus far known, it is their duty, especially those who serve in large hospitals, to search for other methods which have not the two great disadvantages of silver nitrate."[2] This feeling of uneasiness as to the advisability of entrusting midwives with so powerful a caustic as silver nitrate receives further expression in the exhaustive report, recently published, of the Committee appointed by the President of the Washington Obstetrical and Gynæcological Society to investigate the status of the preventive treatment of ophthalmia neonatorum, which states: "As the use of silver nitrate requires absolute precision to prevent serious injury to the eyes, its instillation should *never be entrusted to the midwife.*"[3] The Committee, however, adhere to the policy of interference by the midwife, and recommend the instillation of sophol, 5 per cent.; argyrol, 25 to 50 per cent.; or protargol, 10 to 20 per cent., after the eyelids have been wiped carefully with sterile gauze dipped in a saturated solution of boric acid. That the antiseptic school, however, is not absolutely dominant in the United States is shown by the following letter from Dr. Wendell Reber, President of the American Academy of Ophthalmology and Oto-Laryngology:—"The question you ask in regard to the prophylaxis of ophthalmia neonatorum comes up every now and then for discussion among our surgeons here. Many of them feel that the advantage of the real Credé method has been proven. They are careful to state, however, in nearly every instance, that it should be done by the medical man himself, and not by the nurse. Others are doubting Thomases, and quite an equal percentage among our ophthalmic surgeons have a feeling that

Credé's method, like all other things, will pass. I do personally feel that asepsis, if it can be thoroughly adhered to, would probably accomplish all that Credé's method has been credited with, and I believe this is the feeling prevalent in the United States with many of our prominent ophthalmic workers."

In Britain of late years there is evidence of the steady growth of a feeling against meddlesome midwifery in this respect as in others. Bishop Harman [4] and Arnold Lawson and Russell Andrews [5] deprecate the use of strong antiseptics, but advocate in the one case a weak solution of potassium permanganate (for its impressive colour), in the other a solution of boracic acid. Strong protests against the indiscriminate use of antiseptics have been published from men of experience, notably, among others, Sinclair,[6] Lovell Drage,[7] Stritch [8] and Horrocks.[9] The most important pronouncement, however, on the subject during the last year is the finding of the Ophthalmia Neonatorum Committee appointed by the British Medical Association at the annual meeting at Exeter in 1907, which consisted of nominees of the Association, together with additional members representing the Royal Society of Medicine (Obstetrical and Gynæcological Section and Diseases of Children Section), the Ophthalmological Society and the Incorporated Society of Medical Officers of Health. The report,[10] which was accepted, without a voice being raised in favour of Credé's method, by the combined Obstetrical and Ophthalmological Sections of the Association at the annual meeting in Belfast in 1909, is definitely and entirely opposed to any interference with the infant's eye at the hands of nurses or midwives. This finding is the more weighty because it is endorsed by the Chairman, Mr. Sydney Stephenson, in a memorandum drawn up by him at the request of the Committee. When it is considered that he has written a classical essay on ophthalmia neonatorum, and has been an advocate of Credé's method for many years, even in 1903 to the extent of urging, though unsuccessfully, the Council of the Obstetrical Society to make compulsory the use of silver nitrate by the midwives, to whom at that time they granted certificates, it is clear that the evidence brought before the recent enquiry must have been conclusive, in his opinion, in favour of the aseptic method. The reasons for his conversion are given in his evidence before the Departmental Committee on the working of the Midwives Act, and, though too long for quotation here, deserve the study of every teacher of midwives.[11] Furthermore, this finding has been tacitly endorsed by the Central Midwives Board, who, in their regulations, insist on the most careful asepsis, but pointedly refrain from advising the instillation of any fluid. In a leaflet, dated December 1909, drawn up and issued at the request of the Board, the Chairman, Dr. Champneys, details the different paths of infection, and the precautions which the Board are determined shall be carried out; but,

again, there is no recommendation of the instillation of fluids of any kind whatever.

In the literature of the subject, among all the mass of opinions and statistics, there appears to be lacking any definite information as to practical application of the different methods in the hands of midwives at their daily work. Accordingly, when asked to undertake the writing of an article on the present position of the prophylactic treatment of ophthalmia, with special reference to the training of midwives, I felt that the collection of information and statistics from practising midwives might throw some light on the practical aspect of the question. Accordingly, by a letter published in the *Hospital* and in the *Nursing Mirror*, and by personal application to the members of the Association of Trained Midwives of Liverpool, I endeavoured to obtain such information; but, though many replies were received and much correspondence ensued, the difficulty of obtaining accurate statistics, and of determining the nature and severity of the cases recorded, proved fatal. Evidently in some records sent to me all cases of inflammation, however slight, in others only those which resulted in damage to the eyes, were included, so that any deductions founded on these results as to the superiority of a method, would have been altogether fallacious. Therefore the enquiry in this form was abandoned. Fortunately, however, owing to the special measures taken in Liverpool for the control of ophthalmia neonatorum, the means of obtaining the requisite data were to hand.

Two years ago, at my suggestion,[12] St. Paul's Hospital set aside a small ward for the admission of cases of infantile ophthalmia, the difficulty of moving mother and child being overcome by the use of an ambulance lent by the city authorities; in addition arrangements were made for the treatment as out-patients of cases which, for various reasons, could not be admitted into hospital. An extension of this work has taken place in the direction of prophylaxis. Midwives are encouraged to send infants immediately after birth if there is reason to fear infection; a film is taken, and the eyes are properly douched with a special apparatus which ensures thorough washing of the whole of the conjunctival sac. Orders are given for the child to be brought back on the following day, when, if the film is positive, or the eyes show any signs of inflammation, arrangements are made for treatment. The recognition by the doctors and midwives working in the poorer parts of Liverpool of the value of this ophthalmia department is shown by the increase in the cases, from 75 in the first year, 1908, to 142 in the second, 1909.

The other special measure in Liverpool is the compulsory notification to the local supervising authority of all cases of ophthalmia neonatorum by midwives who are under Section E of the Midwives Act 1902, *i.e.*, all those in private practice. Compulsory notification

of ophthalmia is not actually ordered by the Act, but it is an obvious outcome of the regulation that the midwife must notify to the local authority all occasions on which she advises the summoning of medical aid. In this connection I wish to make confession of a change of opinion. Elsewhere I have expressed doubt as to the necessity of making compulsory notification applicable to all cases of ophthalmia neonatorum, whether in the practice of doctor or midwife. After two years' experience of its value in regard to midwives, and of the results of some cases treated by medical men, I have come to the conclusion that it should be enforced in all cases.

In Liverpool postcards are supplied to the midwives in the following form:—

City of Liverpool.
Midwives Act 1902.

I ——— certified midwife, beg to notify that the infant of Mrs. ——— residing at ——— requires attention on account of inflammation of the eyes.

Dated — day of —— 1910.

On receipt of notification a lady inspector visits the case, to see that proper steps have been taken for treatment, either by calling in a doctor, or by taking the child to hospital.

Owing to these special arrangements it was possible to obtain details of the methods of prophylaxis employed by every midwife in private practice in the city of Liverpool, as well as the number of births attended, and of ophthalmia cases occurring, during the year 1909. With the permission of Dr. Hope, Medical Officer of Health, Mrs. Adrian, Lady Inspector of Midwives, who was preparing her report for 1909, very kindly undertook to obtain these particulars for me. I wish to make full acknowledgement of her invaluable help, without which the enquiry could not have been carried out. Her task was very arduous, involving interviews, sometimes repeated, with all the midwives, and the following up to their homes of a number of cases of which the ultimate results were not known.

In almost all cases a report had been sent by the midwife to the Health Department, but, by cross checking with the records of St. Paul's Hospital, where in each case the name of the midwife had been kept, a few more were discovered. In reference to these, the midwives were interviewed to find out the reason of the absence of report, and it was found that in the majority the disease had developed after the tenth day, when the midwife had ceased to attend.

Eighty per cent. of the cases were treated at St. Paul's Hospital, and of all these full particulars were available. Details of the other cases were obtained by enquiry of the doctors and midwives, and from the records of the Eye and Ear Infirmary, by courtesy of the Pathologist, Dr. Harcourt. It may be taken, then, that the records are accurate, and that every case of moment occurring in the practice of these midwives is included.

The results of these inquiries showed that there were 12,279 births attended by 128 midwives, and 79 cases of ophthalmia, of which 8 suffered more or less injury to the eyes.

In regard to the methods employed, it was found that all the midwives cleanse the eyelids as soon as the head is born, either with dry linen, or with a swab damp with water or lotion; the face and head are washed before the body at the first bath, and in some instances special attention is paid to preventing the rubbing of the eyes by the child's hands. But on the question of instillation of fluids into the child's eyes, both at birth and afterwards, there is marked variation. Different solutions of different drugs are used and for different periods. It is, however, possible to divide them broadly into the two chief classes already mentioned—the antiseptic in which strong germicides are instilled into the eyes in all or in suspicious cases, and the aseptic in which nothing or only indifferent fluid is used; a further sub-division of the aseptic method may be made into actual, in which nothing is put into the eyes, except when there is definite reason to fear infection, and mechanical, in which the eyes are washed out regularly with a non-germicidal lotion.

The classification of the various forms of infection presented more difficulties, but since the gonococcus is practically the only cause of virulent ophthalmia neonatorum, as I have shown in another article,[13] by the results of the bacteriological examination of 136 cases, of which 97, *i.e.*, 71 per cent., were gonococcal, it was vital to the success of the enquiry that a distinction should be made between the gonococcal and the milder forms of inflammation due to the Koch-Weeks bacillus, micrococcus catarrhalis, staphylococci, bacillus coli, etc., or to chemical irritation. Lack of this precaution vitiates, in my opinion, almost all the statistics published hitherto.

In the cases treated at St. Paul's Hospital this distinction was easy, as the clinical diagnosis had always been confirmed by bacteriological examination, but in the others, with the exception of two cases of which the results of the bacteriological examination were supplied by Dr. Harcourt, the diagnosis had to be made on the clinical history. Every case, however, in which the clinical history was not conclusive has been classed as doubtful. The following table gives the results:—

Method.	Midwives.	Births.	Cases of Ophthalmia. Gonococcal.	Non-gonococcal.	Doubtful.	Total.	Cases of Injury.
Aseptic	109	10,264	35 (·3409%)	19	2	56 (·545%)	6 (·058%)
Antiseptic	19	2,015	14 (·69%)	3	6	23 (1·14%)	2 (·1%)
	128	12,279	49	22	8	79	8

This table returns a most definite verdict in favour of the aseptic method. The results of the aseptic method are twice as good as those of the antiseptic, whether the percentages of all the cases of ophthalmia, ·545 to 1·14, or of gonococcal cases alone, ·3409 to ·69, are taken. In the numbers of cases of injury also, the percentage under the aseptic method is only ·058, but that of the antiseptic is ·1. Such, then, are the surprising results of this investigation; surprising because it has been generally accepted that the aseptic method can at best only equal the antiseptic, yet here it shows results not only twice as good, both in regard to infection and damage, as those obtained by the antiseptic method under similar conditions, but also equal to those obtained by the antiseptic method in much more advantageous circumstances, *i.e.*, in the lying-in hospitals. It is possible that an objection may be raised that these statistics cannot be accurate, in spite of all the precautions taken, on the ground that the antiseptic method must be as good as the aseptic, because the instillation of germicides, if it does no good, at any rate does no harm. The fallacy of this argument will be shown later.

In my opinion, these results prove that too long we have been obsessed by the fetish of Credé's method, so-called, and that it is necessary to review the question, not from the standpoint of narrow specialism, but from the vantage ground which we have reached in the advance of medical science during the last twenty years. If the question be examined by the general principles of bacteriology, the following reasons in favour of asepsis appear to me to be unanswerable:—

First, prevention is better than cure. It is better to prevent the entrance of bacteria rather than to try to kill them when admitted.

Secondly, there is no germicide known to pathologists which is powerful enough to kill inevitably one form of living tissue, the gonococcus, without causing grave peril to another living tissue, the human eye.

The experience of Cragin,[14] a believer in the antiseptic method, is an apt illustration of this axiom. In the practice of the Sloan Maternity Hospital he used instillation of 2 per cent. silver nitrate in 1,000 infants, and had 18 cases of ophthalmia, which all recovered; but the use of this solution caused so much silver catarrh, shown by irritation, œdema and discharge, that a great deal of the time of the nurses was occupied in applying compresses and irrigating the eyes, and its use, therefore, was abandoned for a 1 per cent. solution; with this strength in 1,000 infants he had 34 cases of ophthalmia, with the loss of one eye. Then, in turn, were tried protargol, 5 per cent.; argyrol, 10 per cent.; and argyrol, 20 per cent.; and, presumably, he is still searching for the perfect and unknown antiseptic which is both absolutely deadly to bacteria and absolutely innocuous to the human eye. Cragin's experience, that silver nitrate itself, even when

used in solutions strong enough to cause serious reaction, is not an absolute safeguard, is confirmed by another of its advocates, Stephen Mayou,[15] who records a case in which, owing to definite foreknowledge of danger of infection, silver nitrate was used immediately after birth, but severe gonococcal ophthalmia developed on the third day.

Thirdly, even if such a perfect germicide existed, its instillation immediately after birth could not prevent the cases of late infection.

That these form no small amount is pointed out definitely by Sydney Stephenson, who says: "Of one thing I am certain, namely, that secondary infections are commoner than is generally suspected, and I am convinced that this impression, which is widespread, has in some instances led to too little attention being paid to this form of ophthalmia. But we shall probably not err greatly if we regard secondary infection as being responsible for about one-quarter of all cases of ophthalmia neonatorum." My own experience is similar. In 110 cases in which the clinical diagnosis of gonococcal ophthalmia was confirmed by bacteriological examination, 38 were said to have developed after the fourth day. Further confirmation is supplied by the records of the Liverpool Maternity Hospital for the past two years, for which I am indebted to Dr. Stookes. At this hospital the midwife pupils are taught to cleanse the eyelids as soon as possible, but are not allowed to drop anything into the eyes. In 1,027 births there were 3 cases of purulent ophthalmia and 12 of slight conjunctivitis, including stickiness of the lids. Of the 3 cases of purulent ophthalmia only one developed before the fifth day.

How, then, are the wonderful results of Credé's methods in Credé's own hands to be explained. I believe that the instillation of 1 per cent. silver nitrate is only a minor feature of Credé's method, but, being the most dramatic, it has become so magnified that, in the minds of the majority of writers on the subject, it represents the beginning and the end of his method. If, however, the details of his procedure be studied it will be found that it was as follows:—The cord was cut, the baby was washed, the eyelids were wiped with clean linen and ordinary water; the eyelids were opened by an assistant, and a drop of 2 per cent. silver nitrate was dropped from a glass rod into the eye; afterwards the same cleanliness and avoidance of infection were observed. In fact, Credé's own method was unintentionally aseptic, with the addition of the one drop of silver nitrate. In other words, the silver nitrate drop resembles the carbolic spray in general surgery, which was first thought to be the chief element in the prevention of wound infection, but, as the principles of bacteriology became more and more understood, was relegated to a subordinate position, and finally abandoned. This explanation will elucidate at once the remarkable conclusion reached by Sydney Stephenson from a study of tables relating to 112,584 births, in which 2 per cent. solution of silver nitrate gave a percentage incidence

of ophthalmia of ·703 in 76,452 infants, and solutions weaker than 2 per cent. of ·423 in 36,132, that "There appears to be no relation betwen concentration of the silver on the one hand, and powers of prevention on the other. It may fairly be claimed that the figures as a whole show that the weaker solutions are at all events as protective as the stronger ones. Since it is acknowledged by everybody that the former produce less conjunctival reaction than the latter, the conclusion is inevitable that they should be preferred." [17] Surely, from all that we know of bacteriology, if the silver nitrate were the safeguard, the stronger percentage should have given the better results. There must be, then, another factor, and this can be no other than the amount of care taken to prevent infection, care which naturally would be greater in those who were using the weaker solution, and, therefore, pinning their faith less entirely to the germicide.

Here I wish to point out that I am not condemning the use of antiseptics in the treatment of ophthalmia, but emphasizing the unreasonableness of expecting one instillation of an antiseptic to be an absolute safeguard, unless the antiseptic is used in such strength as to be a source of danger to the eye. In our ophthalmia department at St. Paul's Hospital antiseptics are used regularly, and, I believe, beneficially, but only in weak solutions which tend to inhibit the growth of the bacteria without endangering the vitality of the tissues.

In addition to these general objections, however, there are special reasons why the instillation of antiseptics, in strengths which many ophthalmic surgeons would hesitate to use themselves for infants' eyes, should not be entrusted to midwives who have had no training at all in eye work.

First, the midwife has rather vague ideas as to the strength of solutions. In my enquiries I found that as a rule no precautions as to accurate measurement were taken; "weak solutions" of corrosive sublimate, silver nitrate, lysol, cyllin, etc., were used. Obviously this laxity is a source of danger, and two striking examples came under my notice last year. A twin, one day old, was sent to St. Paul's Hospital by a midwife. The eyes were much inflamed, with hazy corneæ, but the discharge was very slight, and bacteriological examination showed no bacteria. So threatening was the condition that the infant was admitted at once into the ophthalmia ward. After a few days of doubt, the eyes recovered, but a permanent nebula remained in the right. Some months later another case was brought to the hospital, which reminded me so strongly of the first that I looked up the records, and found that both had occurred in the practice of one midwife. Enquiry by the lady inspector of midwives showed that this midwife was in the habit of using a "weak solution" of corrosive sublimate, which undoubtedly had caused the mischief in both cases. Perhaps, though, a "weak solution" is safer than the 1 per cent. solution of corrosive sublimate

recommended in a standard text-book for midwives for use when infection is suspected.[19] Were it not that detailed directions are given for its preparation, it might be thought that 1 per cent. was a misprint for ·1 per cent. (which itself would be too strong). The consequence of instilling 1 in a 100 corrosive sublimate into the eyes of a newly-born child could only be disastrous.

Secondly, the use of antiseptics is apt to beget false confidence. As already indicated, too much trust is placed in the germicide, to the neglect of the more important, but less showy, precautions against infection. Furthermore, the midwife, being accustomed to cause more or less catarrh by her instillation, will fail to recognize the advent of the real gonococcal infection, and thus the first few hours when the disease can be aborted by skilled treatment, will be lost irretrievably. I have pointed out elsewhere that our experience at St. Paul's Hospital has been that the duration of the disease varies directly, and the chance of recovery inversely, with the length of time which has elapsed between the onset and the admission to hospital.[18]

As the remaining objections to the use of antiseptic instillations by midwives apply equally to the employment of routine douching of the eyes with indifferent fluids, a digression is convenient here for an analysis of the results of the aseptic methods given in my first table. Although at the beginning of this article, for convenience of comparison with the antiseptic methods, all methods, in which no germicidal lotion were used, were classified as aseptic, yet it is evident that there is a fundamental difference between the methods of douching and non-douching as routine practice; the former endeavours to remove by irrigation bacteria which are supposed to have gained admittance, and may be called mechanical asepsis, or, if preferred, antisepsis; the latter endeavours to prevent their entrance, and may be called pure asepsis. The following table contrasts the results of the two methods:—

Method.	Midwives.	Births.	Cases of Ophthalmia.				Cases of Injury.
			Gonococcal.	Non-g'coccal.	Doubtful.	Total.	
No douching...	68	6,705	23 (·343%)	12	2	37 (·552%)	3 (·044%)
Douching	41	3,559	12 (·337%)	7	0	19 (·534%)	3 (·084%)
	109	10,264	35	19	2	56	6

These figures show that the percentages of infection are almost equal in the two methods, but the record of injury of the douching method is almost twice as bad as that of the non-douching. Hence we may conclude that, as far as these statistics go, the pure aseptic method shows better ultimate results.

To continue the objections, which now apply equally to all instillations of fluids into the eyes by a midwife—

Thirdly, the instillation itself may carry the gonococcus into the eyes, either from dirty swabs or fingers, or from the lotion itself being contaminated.

Of the midwives who carried out this treatment two only used special droppers; the remainder squeezed the fluid in from "dabs" or "clean rags." An example of the danger of this practice is the following:—

A pretty little girl, a year old, was brought to St. Paul's Hospital with eyes so damaged that she was just able, after operation, to see large objects. The history was given that at the birth the midwife, after washing the mother, used the same sponge to squeeze the same lotion into the child's eyes. Severe ophthalmia resulted and left the child almost blind.

Here the assurance of infection was made doubly sure, yet doubtless the midwife thought she was carrying out Credé's method.

The final, and most important, objection to permitting the midwife to meddle with the infant's eyes is that naturally she will fail to see why if she is taught to treat the eyes when they are well, she shall not treat them when they require treatment, *i.e.*, when they are ill. How disastrous may be the result of such treatment is painfully apparent to every surgeon to a blind school.

I think that it may be claimed fairly that this enquiry into the cases of ophthalmia occurring during the last year 1909 in the private practice of the midwives of Liverpool, in every way confirms the finding of the Ophthalmia Neonatorum Committee of the British Medical Association, and may be summed up in the words of their second recommendation to midwives: "Nothing should be dropped into the baby's eyes."

This negative conclusion having been reached as to what the midwife is to leave undone, there remains to be indicated what she should be taught to do.

The following suggested teaching is based on the results of the present investigation, and on the study of some 300 cases:—

1. The midwife should be taught that the infant's eyes are taboo. She must put nothing into them. The only possible relaxation of this rule is that in cases of undoubted infection she may wash them out with saline solution, provided always that she immediately notifies the case to the local supervising authority and uses every endeavour to obtain efficient medical aid at once.

2. She should be taught the cause and paths of infection, so that by knowledge she may avoid them. If once the principle be grasped, that all serious cases of ophthalmia are due to bacterial infection from the mother, and that until the eyes are unsealed they cannot become infected, the midwife will understand easily what precautions

must be taken against admission of these bacteria. As soon as the head is born, and, if possible, before the eyes are opened, she must wipe all discharge away from the eyelashes and eyelids with clean swabs or wool, damp, but not dripping, with clean water, or with lotion which has not been used for the mother; care must be taken to use different swabs for each eye and to avoid wiping any secretion into the eye. The child must be prevented from rubbing its fists into its eyes, at any rate until after the first bath. At the first bath different water should be used for the head from that used for the body, and even so should on no account be allowed to go near the eyes. The midwife must warn the mother not to wipe the child's eyes with her nightdress, sheets or anything which may have become contaminated. It is often recommended that the child should always sleep in a cradle and not in the mother's bed; but in addition to the difficulty of providing a cradle, or even box, and of persuading the mother to allow it to be used, it is questionable whether, in the very poor homes, the child can be kept sufficiently warm apart from the mother.

3. The midwife should be shown cases of ophthalmia and of the results of unsuccessful treatment. A visit to an ophthalmia ward and to a blind asylum should be included in the training of every midwife. In demonstrations of such cases to the members of the Liverpool Association of Trained Midwives I have been surprised to find how many midwives have never seen either the disease in being or its results.

4. The necessity of immediate action in anticipation of infection should be clearly explained. A midwife fearing infection should not be content until the eyes have been examined by a doctor and adequate prophylactic precautions taken.

5. The midwife should be taught that she is compelled by law to notify at once all cases, even the slightest, of inflammation of the eyes.

At the recent annual Nursing and Midwifery Conference I was astonished to hear the matron of one of the chief midwife-training hospitals asking if there was any need for trained midwives to report slight cases of ophthalmia, as they could treat them successfully themselves. The reply of the Chairman of the Central Midwives Board was decisive. Any midwife neglecting to do so runs the risk, not only of blindness for the infant, but for herself of removal from the roll of midwives.

In conclusion, I submit the following scheme of treatment, which completes the system of prevention begun by the method of teaching of midwives advocated in this article. It is founded on the plan already referred to, which has been evolved in Liverpool by the co-operation of the city health authority and St. Paul's Hospital for the provision of inspection and treatment of cases immediately on notification.

The essentials of the scheme are:—

1. The appointment, on the staffs of medical officers of health, of lady inspectors, trained nurses, to visit the cases as soon as notified, to see if adequate measures have been taken for treatment, and, if not, to make suitable arrangements.

2. The organization in every town of an ophthalmia department in one of the hospitals—whether municipal or charitable is immaterial to the present argument, but preferably in the eye hospital if there be one—providing both out-patient and in-patient accommodation. The out-patient department is not only for the treatment of cases which, for various reasons, are not admitted into hospital, but also for the clinical and bacteriological examination of all cases of suspected infection and for their treatment if necessary. This provision for prophylaxis I regard as a most important element of the scheme, being a much more scientific and efficient plan than the indiscriminate instillation of strong antiseptics into the eyes of all new-born babies by midwives ignorant of eye surgery. All serious cases would be removed with their mothers by ambulance into the in-patient department, if possible, into a special ward, where they are placed under the care of surgeons and nurses of special experience in the work, and therefore under the best possible conditions for recovery. By co-operation between the health authority and the hospital the lady inspectors would not only find the cases but also supervise their removal to hospital, and, if necessary, supplement the treatment of out-patients by visits to their homes.

Three objections to this scheme may be mentioned briefly. First, its inapplicability to sparsely-populated rural districts. Fortunately there gonococcal ophthalmia is infrequent, but on the few occasions when a child cannot be brought to the treatment, the treatment must go to the child, in the form of the lady inspector, who will act, of course, under the direction of the local doctor. Secondly, the danger to the mother. This has been shown to be slight by our experience in St. Paul's Hospital, where over 100 mothers have been admitted into the ophthalmia ward, and not one has suffered by her removal from home. Thirdly, the interference with private practice. Ophthalmia occurs chiefly among the poor, and in Liverpool we have found that general practitioners recognize that they have neither the time nor the experience necessary, and are glad to be relieved of these anxious and unremunerative cases.

The scheme has passed the hypothetical stage, having proved its efficiency by over two years' work in Liverpool, and there are signs that it may be adopted in other parts of the country, notably, in Hanley.[20] I believe that its general adoption would give almost complete control over this, the chief, cause of preventable blindness in children.

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The Hæmolytic Lipoids of Degenerating Fibroids with Special Reference to Red Degeneration.*

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The study of red degeneration in uterine fibroids has recently received considerable stimulus from the interesting report on four cases presented to this Society in January of last year by Lorrain Smith and Fletcher Shaw.[1]

The results of the examination of four specimens of the condition which it has been my privilege within the past eighteen months to conduct, together with some conclusions following on an investigation of the lipoid content of red and other degenerating fibroids will therefore, I hope, prove of interest.

The cases are as follows:—

No. 1 (Dr. Wallace's Case).

The patient was 43 years old, and had not been pregnant for $16\frac{3}{4}$ years. The symptoms were chronic pain and discomfort. There was no rise of temperature before operation.

Macroscopical appearances. The fibroid was a large interstitial one, measuring 15 by 20 cms., and was situated in the posterior wall; the surface was smooth and the consistence uniformly rather soft, but not markedly so; the cut surfaces in all directions showed a smooth almost unwhorled appearance coloured a definite red; there were no black spots visible anywhere; the colour was not the mahogany red sometimes seen, but was quite marked and resembled very under-done meat more than anything; it varied but little in intensity from place to place; there was, however, no area where the colour was *not* red; the capsule was not congested.

The tumour was sterile, both ærobically (nasgar, ascitic fluid broth, milk and bile) and anærobically (milk and bile).

Microscopical appearances. Sections show very irregular nuclear staining; in some areas little or none is seen, while in others nuclear staining is well preserved; the structure as a whole is faintly granular with a little shrinkage of the fibres in places and some hyaline change in others; picric acid is well taken up; the endothelium of the vessels is frequently lost, and where this is so no rounded corpuscles are seen, but only débris.

*Read at the North of England Obstetrical and Gynæcological Society on April 15 1910.

Weigert's fibrin stain is positive in many of the smaller vessels; in the majority, however, no such change can be made out.

Free iron cannot be demonstrated.

Sudan III. gives a well-marked golden-red staining; the collections of fat tend to run in the direction of the fibres; there are also a few localized accumulations; the positive colouring is well developed in the walls of the vessels.

No. 2 (Dr. Gemmell's Case).

The patient was sixty years old, and had never been pregnant; the symptoms included dysuria and chronic abdominal pain; the general health was good and the menopause had occurred 12 years previously.

Macroscopical appearances. The tumour, which was removed with the uterus, was interstitial, rounded, hard and even. It weighed 1,008 grammes, and was as big as a full term fœtal head; the uterus and the tumour were found impacted in the pelvis at operation; section showed a dark red hue over the half of the tumour next the endometrium, with some softening; the rest of it was hard and white.

Microscopical appearances. I had only the opportunity of examining a small piece of this specimen at the periphery of the red portion, so the findings are probably slighter than if pieces had been sectioned more deeply in the red area. The uncoloured area shows ordinary fibroid tissue with at most a few streaks of simple hyaline degeneration. As the red area is entered some patchy loss of nuclear staining becomes apparent; many areas, however, stain relatively well; where nuclear staining is defective, the fibres also show degenerative changes of a rather granular nature with occasionally more hyaline streaks; picric acid is taken up well in these areas; the vessels are far from numerous, and occasionally show some disorganization in their walls with débris in the lumina.

Weigert's fibrin stain is positive in a few small vessels.

No free iron can be detected.

Sudan III. shows in the reddened area large collections of fat, from their patchy distribution readily visible to the naked eye. A few small collections can be seen along the vessels in the uncoloured part.

Examination for organisms with Leishman's and Gram's stains is negative.

No. 3 (Dr. Gemmell's Case).

The patient was 36 years old, and had not been pregnant before. A history was given of pain for several years, amenorrhœa for 17 weeks, with the sudden development of acute pain and swelling in the side two weeks before coming under observation, accompanied by a "chill" and a feeling of general upset. There was no rise of temperature before operation.

Macroscopical appearances. The specimen consisted of a pregnant uterus containing a five months' fœtus, and studded with subperitoneal and interstitial fibroids, varying in size from a cricket ball to a pea; the largest of these (*a*) arose low down on the left side, and was impacted in the pelvis; on section the cut surface had a dirty washleather appearance, a firm consistence, and no trace of red colour. Four of the smaller fibroids (*b*), varying in size from a golf ball to a pigeon's egg, and both subperitoneal and interstitial, showed red degeneration of a very marked type; the colour was like raw beef, the consistence firm, and there were no areas of softening; the capsules showed no congestion and the colour was universal and homogeneous. A few of the still smaller tumours (*c*) showed streaks of red running through pale and firm fibroids; while the very smallest were quite unaffected.

Microscopical appearances. (*a*) There is almost complete absence of nuclear staining; a little persists along the line of the vessels, of which a fair number can be seen; the degenerated bundles are hyaline with a certain amount of granular change in addition, and they take up picric acid well.

Weigert's fibrin stain is positive in several of the smaller vessels, but the majority remain free.

Free iron cannot be detected.

Sudan III. is markedly positive with patches of golden red throughout.

(*b*) The description under (*a*) applies in every detail.

(c) There is considerable loss of nuclear staining in the reddened areas with some fibrin deposit even in relatively large vessels and a little extravasation of corpuscles into the substance of the tumour.

Representative pieces from (*a*) and (*b*) were tested both ærobically and anærobically, as above, and found to be sterile.

No. 4 (Prof. J. A. C. Kynoch's Case).

The patient was 34 years old, and had never been pregnant; pain was not an outstanding feature, and operation was advocated for gradually increasing menorrhagia; the temperature was not taken before operation, as nothing pointed to a rise.

Macroscopical appearances. The tumour was interstitial, and measured about 19 cms. across; the red colour was universal and of an almost mahogany hue; the specimen was not cut across till after fixation, but the capsular veins then strongly suggested thrombosis: the consistence was firm and there were no areas of softening.

Microscopical appearances. Nuclear staining is irregular and sparse; the fibres show the usual combination of hyaline with granular change; there is great engorgement of the veins in and immediately within the capsule, with considerable extravasation of blood into the tissues in this region. (Herein this case differs from

the three preceding, and resembles the more unusual cases described by Fairbairn [2] in his monograph.) The walls of the vessels in these peripheral parts are intact. More deeply, this vascularization ceases, the degeneration of the bundles becomes more marked and the appearance conforms to the more usual type of red fibroid.

Weigert's fibrin stain is almost completely negative; the capsular veins which one confidently expected to find filled with fibrin, show none at all, and in the tumour itself only a very occasional small vessel shows it; one or two of the vessels, at the edge of the engorged area, present an appearance suggesting the commencement of agglutinative thrombi.

No free iron can be made out.

Sudan III. shows a well-distributed, but slight, deposit of fat; the specimen, however, had passed, in course of preservation, through spirit, so probably part of the fat had been dissolved out.

Sections stained with Leishman's and Gram's stains are negative.

Before proceeding to discuss the many features of interest in these four cases, it will be advisable to detail the result of an investigation into the total lipoid content of four degenerating fibroids. The hæmolytic action of many lipoids is, of course, a well recognized one; but, so far as I can ascertain, no suggestion of their relation to the phenomenon of laking of the blood in fibroids has been made.

The method adopted was as follows:—A given weight of finely minced fibroid was mixed with a sufficiency of gypsum to ensure dryness. The set cake was ground in a mortar to a powder, which was thoroughly extracted with ether, by agitation for 24 hours and repeated washings. The residue was acidulated, evaporated on a water-bath and again extracted with ether. By this means certain phosphatides, which by combination with proteid are insoluble in ether, are liberated. No chemical analysis was attempted, but the action on red corpuscles was investigated. In each case the extracted lipoid was yellow, fairly firm at room temperature, and had a melting point above 36·5°C.

Case 5.

Macroscopical appearances. The fibroid was interstitial, and weighed 640 grammes; the surface was smooth and the consistence firm; the cut surface was pale and slightly yellow with a tint of brown towards the centre; the general appearance was very homogeneous with little of the usual whorling; there were no cysts and no soft areas; a few of the larger vessels stood out as yellow circles; no red colour was apparent at any point.

Sterility was confirmed.

Microscopical appearances. Nuclear staining is very defective, many areas showing practically none; the fibres are granular and stain brightly with picric acid; the strands of connective-tissue.

however, still absorb a little fuchsin; the outline of the vessels is indefinite and endothelium is seen in only a very few; no corpuscles are seen in any of the lumina, but débris is present in considerable quantity.

Weigert's fibrin stain is negative.

Sudan III. shows very extensive golden-red staining throughout. It must be remembered that Sudan III. is a satisfactory stain for fats only and not for soaps. The sunset-red of the former is very distinct, but the yellowish-pink of the latter too much resembles the general tissue staining. The silver method of Klotz [3] for picking out the calcium phosphate of a later stage of fatty change has not in my hands given very clear results, except in the advanced cases. I have not, however, tried his plan of first converting the phosphate into chromate. Distinct staining, then, by Sudan III. is no criterion of the total lipoid present.

The total lipoid extracted from 20 grammes of fibroid by the method given above was 0·346 grammes.

Case 1 (Dr. Wallace's Case) described above.

The total lipoid extracted from 20 grammes was 0·269 grammes.

Case 6.

Macroscopical appearances. This was an interstitial fibroid, weighing 200 grammes; the surface was slightly lobulated, and the consistence before opening was firm. On cutting across it there was seen to be some separation of the fibres by œdema, and a little clear fluid could be squeezed out; the cut surface was dull white and scarcely so whorled as an undegenerated fibroid.

Sterility was confirmed.

Microscopical appearances. There is a little separation of fibres by œdema—the fluid accumulating in lacunæ with no tendency to form definite cysts; the vessels are numerous and full of formed corpuscles.

With Sudan III. very small points of fatty deposit are seen in places—most marked around the lacunæ.

The total lipoid extracted from 20 grammes of fibroid was 0·149 grammes.

Case 7.

Macroscopical appearances. This was a very large interstitial fibroid with considerable lobulation on the surface, and firm consistence before being opened; on cutting into it, clear fluid readily flowed away; after being chopped up and allowed to drain for four hours the weight was reduced from 1,180 grammes to 980 grammes; the fluid did not clot on standing. The bundles of tissue between the spaces were hard and white vascularity was good throughout, and its sterility was confirmed.

Microscopical appearances. Staining is good except where the œdematous infiltration is very marked; there is distinct hyaline transformation of the connective-tissue in places; the muscle fibres have the coarse appearance so often associated with œdematous degeneration; the vessels are distended with blood.

Sudan III. shows up small deposits running along the line of the fibres and spread well over; some larger collections are seen in places; there is distinctly more as a whole than in Case 6.

The total lipoid extracted from 20 grammes of fibroid was 0·224 grammes.

A general comparison of the amounts of lipoid extracted from these four fibroids is of interest. It will be noted that the fibroid showing most was No. 5, where nearly all nuclear staining had disappeared. On the other hand, No. 6, in which the degeneration was slight, presented a relatively large amount—almost half of No. 5. Co-relating with this the results of Sudan III. staining, it would appear that in Nos. 5 and 1 the lipoid was largely fatty, and in Nos. 6 and 7 soapy.

Now, as to the hæmolytic property of these liquids. They all showed it to a marked degree. One per cent. emulsions were made by grinding the material in the necessary amount of normal saline in an agate mortar. This rough emulsion was then placed in an incubator, and, after an hour, violently shaken and rapidly cooled to preserve the emulsion as fine as possible. Varying quantities were added to 3 per cent. or 5 per cent. suspensions of pooled corpuscles in normal saline. The total quantities were then equalized, and the tubes placed in an incubator at 36·5°C., and thereafter in an ice-chest overnight. In Chart 1 is given the results obtained with a 3 per cent. suspension.

The most interesting point about this hæmolytic action is the peculiar brown transformation with bleaching of the colour which occurs when lipoid is present in excess of that required for complete hæmolysis. With lipoid sufficient for complete hæmolysis the fluid is coloured a bright red throughout. With more lipoid present a brownish tint supervenes, while with still more lipoid, a brownish-black deposit appears and the supernatant fluid becomes absolutely clear without a trace of red colour.* This phenomenon was present in every case. Prof. Ben. Moore has suggested to me that it is due to hydrolysis of the lipoid and the formation of free oleic acid, in the presence of which it is invariably found.

The action of blood serum on this process was next investigated, and, as always with these lipoids, it was found to have a strongly inhibitory effect.* This is illustrated in Chart 2, which is typical of all. This inhibitory action is neither specific nor vital. Stale horse

* Demonstrations *in vitro* were given.

serum possesses it equally with human serum. Heating fresh serum to 56°C. for 30 minutes does not effect the result.

Citrated plasma behaved exactly as serum.

Klotz describes the formation in the tissues of compounds of albumen and soaps which are much less soluble than the original sodium and potassium soaps. Probably this is the explanation of the restraining action.

What conclusions, then, can be drawn from these experiments?

Firstly, it is clear that in degenerating fibroids there is present an actively hæmolytic element which is held in check by the presence of the blood plasma. This accumulation of lipoid may be large without hæmolysis taking place. A balance is held between the two, and only when lipoid accumulates beyond the amount that the blood can inactivate or when the blood supply is reduced in proportion can this potentiality become active.

Secondly, if the hæmolytic process occurring in fibroids is of this lipoidal character it is equally clear that a continuance of the process may lead to loss of the red colour with substitution of a greyish or greyish-brown tint.

If we now regard red degeneration with these possibilities in view, several suggestive points will readily occur to mind.

It will be convenient to consider these possibilities under the headings of:—

(1) The essential nature of the process.

(2) The clinical course associated with red degeneration.

(3) The question of thrombosis.

(4) Classification.

(1) The essential nature of the process. The degeneration is obviously due to some *local* condition existing in the fibroid. In Bland-Sutton's words, "It is curious to see a gravid uterus containing four or five fibroids the size of potatoes, and only one exhibiting this remarkable degeneration." No one, I take it, now doubts that the actual condition produced *is* a real laking of the blood in the tissue of the tumour. Pieces from Cases 1 and 2, which were apparently mild in type, placed in normal saline, which was occasionally gently agitated, lost most of the red colour within 24 hours. The tint remaining after this immersion was more grey than red, but the depths of the piece remained red. The other two cases did not so lose their colour. Evidently the pigment becomes fixed in the tissues. Of the nature of this pigment I can say nothing. The oxyhæmoglobin bands can readily be detected in it, as Taylor [6] also has demonstrated. But free iron can not be shown in the tissues.

It must be remembered, in examining red fibroids, that the diffusion of red pigment may spread considerably beyond the area of production. A great deal depends on the texture of the surrounding tissue, as a few simple experiments proved. Pieces of undegenerated

fibroids placed in normal saline containing laked corpuscles were, after seven days, penetrated only to a depth of one-eighth of an inch, while soft and degenerating fibroids, after the same time, showed a red tint from a quarter to half an inch from the surface.

The only point remaining is the actual site of the hæmolysis. I have occasionally observed some extravasation of corpuscles in the stroma of red fibroids. This escape from disorganized vessels no doubt leads to increase or continuance of the hæmolytic process, but in most cases no such extravasation can be seen, and the focus of hæmolysis must lie within the degenerated vessel itself.

(2) The clinical course associated with red degeneration. It is customary to write of red degeneration as being essentially associated with somewhat acute symptoms. In the majority of cases *reported after operation*, no doubt this is true, but as Bland-Sutton [4] emphasizes "painfulness and tenderness are only markedly exhibited by red fibroids when associated with pregnancy." He continues by stating that "pain is present only in the early stages of the degenerative process." Fairbairn, in his monograph on 19 cases, found pain present in 16, but only in 11 of these was it severe, and the chief reason for the patients seeking advice. Lorrain Smith and Fletcher Shaw found "pain and rapid enlargement" present in all their four cases. In my series, three of the four presented no special or urgent symptoms, while the fourth, occurring during pregnancy, did show some urgency. The importance of appreciating the possibility that a red fibroid may remain unrecognized as such cannot be overestimated if we are to arrive at a true idea of the life history of these tumours. To point out that "red coloration is only rarely found in any large series of degenerating fibroids" is no conclusive evidence that such red coloration but seldom occurs *if* this bleaching action which I have described as occurring *in vitro* takes place in the body.

Any collection of cases will show extreme variation in degree of symptoms produced, ranging from a condition simulating acute torsion of the pedicle of an ovarian cyst or the like, to pain no greater than is found with any more ordinary form of degeneration in a fibroid of corresponding size or situation. It is, of course, difficult to separate in the acute cases symptoms due to the degeneration *per se* and to a superadded infection. Case 3, however, demonstrates that a very considerable degree of upset may arise in a red fibroid in which the most careful cultural experiments failed to find the presence of bacteria.

If such cases be left alone, Bland-Sutton affirms that the pain disappears. Is it necessary, then, to believe that *every* such fibroid would break down into the diffluent mass which he describes?

(3) The question of thrombosis. Lorrain Smith and Fletcher Shaw describe as present in their four cases a very pronounced thrombosis even to the very minute vessels. In three of these cases

the larger thrombi were distinctly visible to the naked eye. Stevens[5] also records a case with pronounced thrombosis throughout the veins of the capsule. On the other hand, Fairbairn describes the capsule as always white and not engorged. While Taylor,[6] from a study of 30 cases denies that thrombosis occurs in the majority.

All four of the cases in this present series showed fibrin in some of the smaller vessels, most marked perhaps in Case 1, where the colour was least intense, and certainly least marked in Case 4, where the colour was very deep. In no case was the capsule implicated.

The small total amount of thrombosis in these cases and its lack of proportion to the degree of hæmolysis, make one suspect that perhaps after all the thrombosis is *not* primary.

To begin with, it is quite apparent that in all degenerating fibroids of the starved type, whether necrobiotic, necrotic or hyaline, arrest of circulation and disintegration of the vessel wall can occur without thrombosis. Taking into consideration, then, the very diverse reports on the amount and extent of the thrombosis found, is it not very probable that the converse way of regarding the process is the more likely, namely, that the disorganization resulting from hæmolysis of the corpuscles, induces the deposit of fibrin in a vessel wall already partly disintegrated, and ready to precipitate such a deposit?

Furthermore, as Bland-Sutton[4] pointedly asks: "If primary thrombosis is the cause of this hæmolytic reaction, why has it never been seen in such an ideal situation as an ovarian fibroid with twisted pedicle?"

Drawing a moral from such reasoning led me to examine for fibrin a short series of fibroids microscopically resembling red degeneration in their sparse nuclear staining and combined hyaline and granular degeneration, but presenting no trace of red colour. Seven were sectioned, and to these may be added the large grey fibroid from Case 3. In three of this total of eight cases, were found small degenerated vessels plugged with fibrin. These thrombi were certainly infrequent, but were undoubted.

That extensive thrombosis is largely responsible for the acute clinical picture associated with rapid enlargement is, I think, certain, but that it is primary I consider there is more evidence to disprove than prove.

Infection and thrombosis. The question of infection of red fibroids considerably complicates the problem of their pathology. Only rarely has the opportunity been taken thoroughly to test their sterility. Short of this the only method possible is direct examination with suitable stains. It does not follow that the infection, if present, is a coccal one; indeed on general grounds the most likely agent in abdominal infection is the Gram negative colon bacillus, and anyone with much experience of looking for a short bacillus among fibrous tissues will be ready to testify to the difficulties of the search. A negative report,

from such direct microscopical examination, is only of moderate weight. Of this nature, probably, is the case narrated by Fletcher Shaw [7] (as he himself will be ready to admit), in which pain, temperature, serious illness and, finally, endocarditis were present in a case of red degeneration unassociated with pregnancy. Stevens' [5] case, already referred to, where there was extreme thrombosis in the capsule and a layer of coagulated lymph between the capsule and the fibroid, is also very suggestive of infection, the only evidence negativing it being an examination of sections with Gram's stain.

Bland-Sutton's [4] case with staphylococcal infection of one red fibroid and sterility in several others in the same uterus, proves that a bacterial infection may be wholly secondary. At the same time, I cannot help feeling that it would be rash to assert that thrombosis (with arrest of escape of lipoids and perhaps consequent hæmolysis) in such cases is never primary. And it must be remembered that many organisms are strongly hæmolytic *per se*. The point, however, is a difficult one.

(4) Classification. Does this hæmolysis necessarily indicate that a red fibroid is a type by itself? Most emphatically I think not. Nothing is more certain than that many fibroids showing no red colour, yet present microscopical appearances identical with those seen in a red fibroid. Personally, I certainly would not care to pick out the red fibroids from a series of degenerating fibroids stained with hæmatoxylin and eosin or van Geison. In a fibroid, also, showing partial red degeneration, while one would not expect a sharp line of demarcation, since the colour is a matter of diffusion, still in parts removed from the red area the appearances may be identical with those observable in the area most affected. An apparently strong argument in favour of a special type is found in the low percentage of *red* fibroids in any series of degenerating fibroids. Against this I hope that I have shown—

Firstly, that not every red fibroid comes to operation—that the degeneration may be going on without necessarily leading to any symptom of urgency, especially if unassociated with pregnancy.

Secondly, that there is strong evidence that in time (whether short or long I cannot say) the red colour may disappear. This evidence is partly *in vitro* and partly microscopic. The largest fibroid in Case 3, goes far to prove this. Here was a fibroid presenting microscopic appearances identical with co-existing red fibroids, and yet itself presenting no trace of red colour, although every other fibroid larger than a pigeon's egg in the specimen was so coloured.

In this connection it is interesting to speculate on the nature of the grey-brown coloration seen in many degenerating fibroids. Is this a staining of the tissues or is it necrosis? It was found in Cases 1 and 2 after the red colour had been allowed to diffuse into

saline. With no evidence of breaking down, either macroscopically or microscopically, and taken in conjunction with the occasional deposit of fibrin in some of the very small vessels, such a colouration might justifiably make one suspect a previous hæmolysis. Nor need one expect *much* evidence of thrombosis in such a late condition, as organization *is* possible, if not very probable, in marked cases of degeneration.

The general type, too, of degenerating fibroid affected by hæmolytic changes is helpful in correctly placing these red tumours. It does not show that completely hyaline appearance, which, as I have shown in a previous paper,[8] is readily produced even in dead fibroid tissue when the fluid elements of the blood are present in sufficient quantity or concentration to prevent autolysis. The transformation is as much granular as hyaline. In other words, there is a certain amount of autolysis in process.

Why, then, it may be asked, do not all breaking-down fibroids show red degeneration? Until the nature of the pigment is cleared up it will be impossible to answer definitely this query. The possibilities are two—either (1) that hæmolysis *does* go on, but from bleaching is unrecognized; or (2) that the lipoid is different in character when true necrosis is present. Cholesterin, which is very frequently found in these breaking-down cavities, is a well-known anti-hæmolytic.

Again, tinting of hyaline fibroids is, according to Kelly and Cullen,[9] very marked in some cases. The few instances where I have noticed a marked brown tint were fibroids showing advanced circumscribed areas of hyaline change with—for hyaline degeneration—an unsually large amount of fat.

Finally, I should like to suggest a more rigid nomenclature. In the light of what I have said it would appear reasonable to apply the term "necrobiosis" to the whole group, and "necrobiosis with hæmolysis" to such specimens as show obvious diffusion of blood pigment.

The life-history, therefore, of *uncomplicated* red degeneration which I would put before you is as follows:—Hæmolysis takes place in some of the smaller degenerated vessels of a fibroid undergoing aseptic necrobiosis. This results from the action of hæmolytic lipoids associated with the degeneration, and is inaugurated by a lack of the control which plasma can exercise. As a result of this upset, thrombosis sets in and the course varies with the amount of this latter. If it be very extensive, the clinical picture so frequently seen in pregnancy is developed, with much pain and enlargement of the tumour. But if it be slight, the tumour may in time lose the red colour and appear later as a fibroid showing areas of dirty yellow, grey or brown.

Conclusions.

1. The lipoids of degenerating fibroids are markedly hæmolytic.
2. This hæmolytic action is readily restrained by blood plasma.
3. Excess of lipoid in a suspension of red blood corpuscles leads to the development of a grey or brown colour in place of the red.
4. Thrombosis in red degeneratioan is not primary.
5. Red degeneration microscopically is identical with certain other degenerating fibroids showing no red.
6. The accumulation of lipoid is not, in the first instance, dependent on the presence or amount of thrombosis, but on the degree of preceding degeneration.
7. Laking of the corpuscles has more relation to lack of the fluid constituents of the blood than to large excess of lipoid.
8. Many of the stains in fibroids—not necessarily *red* stains—may be due to old symptomless hæmolysis.

I am deeply indebted to Dr. Gemmell, Dr. Wallace and Prof. Kynoch for their kindness in placing at my disposal the material on which this paper is based.

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CHART I.

THE HÆMOLYTIC POWER OF THE LIPOIDS EXTRACTED FROM FOUR DEGENERATING FIBROIDS.

		After 2 hours.	After 24 hours.
CASE 5.			
1 cc. 3% R.B.C.	+ 1/10 cc. 1% emulsion	+	+
,,	+ 1/8 cc. ,,	+	+ + fluid bright red.
,,	+ 1/5 cc. ,,	+ +	Comp. fluid brownish red.
,,	+ 2/5 cc. ,,	Comp. fluid brownish red.	Comp. brown deposit, fluid bleached with no trace of red.
CASE 1.			
1 cc. 3% R.B.C.	+ 1/10 cc. 1% emulsion	+ sl.	+
,,	+ 1/8 cc. ,,	+ +	+ + fluid red.
,,	+ 1/5 cc. ,,	+ +	Comp. fluid brownish red.
,,	+ 2/5 cc. ,,	Comp.	Comp. brown deposit, fluid bleached with no trace of red.
CASE 6.			
1 cc. 3% R.B.C.	+ 1/10 cc. 1% emulsion	−	+ sl.
,,	+ 1/8 cc. ,,	+	+
,,	+ 1/5 cc. ,,	+	+ + fluid red.
,,	+ 2/5 cc. ,,	+ + fluid red.	Comp. fluid brownish red.
CASE 7.			
1 cc. 3% R.B.C.	+ 1/10 cc. 1% emulsion	+	+ + fluid brownish red.
,,	+ 1/8 cc. ,,	+	Comp. fluid brownish.
,,	+ 1/5 cc. ,,	+ + fluid brownish red.	Comp. brown deposit, fluid bleached.

CHART II.

THE INHIBITION OF HÆMOLYSIS BY BLOOD SERUM.

			½ hour.	1 hour.	2 hours.	24 hours.
CASE 7.						
1/2 cc. 3% R.B.C.	+ 1/20 cc. 1% em.		−	+	+	+ + brownish.
,,	+ ,,	+ 6m. serum	−	−	−	−
,,	+ ,,	+ 4m. ,,	−	−	−	+
,,	+ ,,	+ 3m. ,,	−	−	−	+ + red.
,,	+ ,,	+ 2m. ,,	−	+ sl.	+	+ + brownish red.
,,	+ ,,	+ 1m. ,,	−	+	+	+ + brownish.

+ sl., +, + +, Comp. indicate degrees of hæmolysis.

SELECT CLINICAL REPORT.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class).

Subphrenic Abscess Complicating Pregnancy: with Sloughing of Spleen.

By Bethel A. H. Solomons, M.B., B.Ch., B.A.O. (Dub. Univ.),
Assistant Master, Rotunda Hospital.

K.M., aged 25, primipara, had been in a general hospital suffering from pneumonia until a week before Christmas. She was admitted to the Rotunda on January 5 1910, having tried in vain to obtain admission to a general hospital. She was in great pain and had been so from shortly after her recovery from the attack of pneumonia.

There was no history of gastric or renal trouble. On examination it was found that there was a tense resistant mass, dull on percussion, and well defined in its lower margin, which stretched from beneath the left costal arch across the middle line to the right costal arch, occupying the left hypochondrium, the epigastrium, and to a slight extent the right hypochondrium.

The uterus was the size of a six months' pregnancy, and it was perfectly obvious that there was no communication between the uterus and the mass.

Diagnosis of subphrenic abscess was made. In consequence of the great debility from which the patient was suffering it was decided to perform the operation under local anæsthesia, but a general anæsthetic was given when it was found necessary to enlarge the incision below the umbilicus. The peritoneum was thickened and inflamed. A mass, cystic in appearance, was found, and opened, and a watery fluid followed by an immense amount of foul smelling pus escaped. The sac of the abscess was carefully irrigated with saline solution, and a Keith's tube and iodoform gauze inserted. A gauze drain was placed in front of the stomach. The sac seemed to have no connection with any viscus. The patient suffered greatly from shock, and stimulation was required. Injection with continuous saline was commenced soon after the operation was finished, and was continued for some hours. Antistreptococcic serum was

+al., +, ++, Comp. indicate degrees of haemolysis.

given. Labour began 28 hours later, and a six months fœtus was delivered by forceps three hours afterwards. Forceps was applied owing to excessive straining when the os was fully dilated. The placenta followed in due course.

The Keith's tube was removed on the day following the operation, and was replaced by a small Kocher's tube. This was changed daily until the fourth day. The iodoform gauze was removed with difficulty on the third day. Vomiting and constipation were troublesome. On the third evening symptoms of iodoform poisoning appeared. The patient became very restless, later becoming delirious. She had severe pain in the abdomen, and iodine was found in the urine. There was no rash. On the fourth night the pulse-rate, which had ranged from 104 to 110, rose suddenly to 140, and later to 160. For some days after this the patient had rigors, and later a parotid abscess developed. On the twenty-fourth day after the birth of the infant, when the patient was about to be dressed, a great spongy mass, necrotic and stinking, was found outside the wound. It was impossible to say exactly what it was. The patient lingered after this for 18 days, when she died.

The post-mortem, which was performed by Dr. Rowlette, showed the following:—

Right pleural sac. Many adhesions with one pint encysted turbid fluid. Large abscess buried in base of *right lung.* Extensive bronchopneumonia.

Left pleura. Everywhere adherent. Small quantity of fluid. Abscess buried in base of left lung.

Heart small. Mitral valve thickened.

Abdomen. Abscess sac in left lobe of diaphragm, with sinus leading to wound and discharging green pus, entirely shut off from rest of peritoneum. Adhesions in pelvis enclosing green pus in small quantity in *Douglas's pouch.* Abscess, size of hen's egg, in *right ovary.*

Spleen absent except small piece, size of hazel nut.

Kidneys and *stomach* healthy.

Liver congested.

Pus gave cultures of B. pyocyaneus.

So far as I have been able to discover, a case of sloughing spleen complicating subphrenic abscess and accompanied by pregnancy is unique; and for this reason I have deemed the case worthy of publication. For permission to publish it I am indebted to Dr. Tweedy, Master of the Hospital.

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

LIST OF COLLABORATORS:

LONDON. Alban Doran, F.R.C.S.; J. J. Macan, M.D.; J. B. Banister, M.D.; J. Barris, M.B.; B. Glendining, M.D.; A. L. H. Smith, M.B.; F. E. Taylor, M.D.; C. White, M.D.; J. A. Willett, M.D.

EDINBURGH. E. Scott Carmichael, M.B.; Miss J. H. Filshill; R. W. Johnstone, M.D.

GLASGOW. E. H. L. Oliphant, M.D.

SHEFFIELD. Miles H. Phillips, M.B.

CHELTENHAM. C. J. N. Longridge, M.D.

Scopolamin and Morphine as a Preliminary to General Anæsthesia.

CLIFFORD U. COLLINS (*Journ. Amer. Med. Assoc.*, 1910, Vol. liv, p. 1051).—This article is based upon observations of more than 1,100 cases. Collins has met with none of the bad symptoms reported by other users of this combination. Hypodermic injection, containing a combination of scopolamin $^1/_{100}$ grain and morphine $^1/_6$ grain is administered one and a half hours before the operation is begun. The patient is then kept quiet and no one is allowed to talk to him. Twenty minutes before the operation a layer of damp cotton is placed over the eyes and the patient is taken to the operating room, where the preliminary arrangements for cleansing of the skin are carried out. Ether has been the anæsthetic most favoured in this series of cases, and it is claimed that a considerably smaller amount of the anæsthetic is required. The patient is relieved of all nervous apprehensions prior to the administration of the general anæsthetic, post-operative vomiting is greatly decreased and the secretion of mucus in the throat is checked. C. N. L.

Leucocytosis as a Diagnostic Sign in Abdominal Surgery.

PETIT and ARACTINGI (*La Gynécologie*, Jan. 1910) refer to a paper written two years ago in which they insisted on the great diagnostic value of this examination, and now give some further cases in illustration.

In Case I. the patient was admitted as suffering from acute appendicitis. A blood count, however, showed only 2,656 leucocytes, and operation revealed a tuberculous peritonitis.

Case II. similarly was sent to hospital for acute suppurative salpingitis. A leucocyte count of 6,000 suggested tuberculosis, and the diagnosis was confirmed by operation.

Case III. shows the converse condition. A chronic peritonitis was found at operation to have led to a number of abscesses; one of the suppurating tubes burst during extraction, but the patient did well, as her leucocytes numbered 10,000. It is not mentioned that the pus was examined bacteriologically.

They maintain that the leucocyte count is the surest way of ascertaining that an appendicitis is in a quiescent stage for operation. E. H. L. O.

Schaudinn's Spirochæta Pallida.

A. GIRAULD (*L'Obstétrique*, Jan. 1910) says it is rare to find the spirochæte in the liver of a fœtus before the sixth month; that is, the organism invades the fœtus only after the syphilis has already passed from mother to fœtus. In probably two-thirds

of the cases maceration of the fœtus is a sign of syphilis. If an apparently healthy mother bears a fœtus showing maceration and with evidence of spirilla in its liver it may be presumed that the syphilis is is of paternal origin, but it is admissible to suppose that the organism may lie latent in the mother to become active in the fœtus. The spirochæte is more abundant in the liver of the living child than in that of a macerated one. Treatment of the mother coincides with the absence of the spirochæte in the fœtus, and is accordingly very important, even when the syphilis is of old standing; further, the apparently healthy mother must be treated if the father has been syphilitic. This treatment must be thorough or it will fail, and Girauld recommends intra-muscular or intra-venous injections. Examination of the placenta for the presence of the spirochæte is useless. Syphilis is not a cause in itself of the production of monsters. The article is illustrated with drawings of microscopic sections. E. H. L. O.

Delayed Death from Chloroform.

H. Roulland (*La Gynécologie*, Jan. 1910), in an article of forty pages, summarizes all the published cases that he has been able to find, and gives details of a personal observation. The patient was a married nullipara, aged 50, suffering from a fibroid tumour of the broad ligament, but her general health was excellent. The operation was tedious, as there were many adhesions. A large quantity of chloroform was required to induce anæsthesia, and 30 grams were used in all *à la compresse*. The anæsthesia was followed by much vomiting; this was followed by excitement and delirium passing on to a state of coma with Cheyne-Stokes respiration. Death occurred on the sixth day. Details are given of the post mortem signs, which included those of a long-standing sclerosis of the kidney; in the liver the centre of the lobule was deeply congested and the rest markedly fatty. Treatment seems unavailing, and Roulland suggests the prophylactic use of oxygen with chloroform, especially in alcoholic subjects and those enfeebled by disease or intoxications.

E. H. L. O.

Preparatory and After Treatment: also Choice of Anæsthetics.

Holzbach, Tubingen (*Volkmann's Sammul.*, 1910, No. 575), relates his conclusions from observation of a large number of gynæcological cases. After warning that the dazzling primary results of modern operations may blind one to their consequences, and after a general discussion of preliminary examination and treatment of the patient's special organs, Holzbach enters into details. He condemns the prophylactic use of saline injections in anæmic patients, as also in exsanguine women after operation; such injections merely dilute what blood is left and increase the gasping for air. This symptom is best relieved by morphia. The functional activity of the kidneys, where this has been in doubt, can be tested by throwing on these organs the strain of excessive, albuminous diet or by exercise. If they do not come through the ordeal scatheless and the operation is imperatively indicated, then lumbar anæsthesia is contraindicated, for in Holzbach's experience this method leads to an increase of albumen and of tube-casts in the urine. Diabetes contraindicates all operations except those for the relief of conditions threatening imminent death, for coma may supervene no matter what method of inducing anæsthesia be used.

Purging before operations arose in days before the advent of other methods of getting rid of the presence of bowel in the field of vision, such as the Trendelenburg position and the damming back of coils of intestine by pads. After most abdominal operations there is paresis of the intestinal muscle with its consequent meteorism and colicky pains. Holzbach is satisfied that this condition is due to the antecedent purgatives and enemata; in general terms flatus and motions are not passed for 44 hours after operation, often not till after 60 hours, even when all possible care has

been taken not to interfere with the bowel by cooling it or handling it. Accordingly Holzbach determined to try the method of abstaining from the administration of purgatives and of enemata and from starving the patient before or after operation. In a series of fourteen major operations on unselected patients so treated he found that flatus was passed on an average 23 hours after operation (19–44 hours), while the first motion was passed on an average after 37 hours.

Hæmorrhage must be thoroughly arrested in all cases and drainage be employed whenever there is reason to suspect the introduction of septic matter into the abdomen. The careful arrest of hæmorrhage is worth the time spent on it in view of the advisability of allowing the patients to sit up at a very early date. Holzbach is a strenuous advocate of this procedure, though he finds that in his own experience it has *not* prevented the occurrence of thrombosis in women who have sat up within the first 24 hours, but it does tend to diminish the occurrence of bronchitis and pneumonia. Reconvalesence is hastened so that patients are sooner able to get back to work. Particular attention must be paid to the condition of the urinary apparatus; during and after operation the secretion is at a standstill; the extrusor muscles are partially paralyzed, and anæsthesia and the presence of pain diminish the reflex desire or obscure it. It is essential then to see that the bladder is thoroughly emptied or sepsis will arise in the bladder. The diminution in the functional activity of the kidney is to be combated by the free administration of fluid; this is done by an injection, hypodermically or *per anum* or both, immediately after the operation, and *per os* on the afternoon of the operation day. Forty-eight hours after operation the patient is allowed to eat meat and vegetables. It is essential to remember the occurrence of this diminished secretion and sometimes of complete suppression for 48 hours; otherwise one may be led to perform a second laparotomy to look for a suspected interference with a ureter. Holzbach uses gloves for operation after washing the hands in 96 per cent. alcohol, but finds it severe on the hands which must be cleansed and anointed after operation. The patient's skin is mechanically cleansed the day before operation and kept covered, and on the table the skin is treated with alcohol.

More experience is necessary to answer many of the questions that have arisen on the choice of anæsthetics. So far lumbar anæsthesia seems to offer some advantages, such as the complete relaxation of the abdominal wall and the absence of the straining that sometimes occurs during inhalation anæsthesia. Holzbach seems to have found it satisfactory to combine inhalation anæsthesia with the pre-administration of scopolamin or morphine; this method abolishes the patient's dread of operation, and this, as also lumbar anæsthesia, gets rid of the struggling and choking so often experienced in simple inhalation anæsthesia; but probably experience will enable us to lay down special indications for the different methods.

E. H. L. O.

Excision of the Fat of the Abdominal Wall—Lipectomy.

Howard A. Kelly (*Surgery, Gynæcology and Obstetrics*, March 1910), in a short paper, points out the great comfort which results from excision of the large pendulous roll of fat in the abdominal wall, which is often such a source of inconvenience and distress. It is easy to see how much tissue ought to be removed by pulling the mass up and away from the body. An incision above and below on the pendulous mass, down to the deep fascia, made a little above the lines of deflection, will remove enough fat and yet leave enough skin for approximation. The dissection can be made very rapidly; all vessels must be carefully ligated. A small cigarette drain should be inserted at each end of the wound. Kelly has done this operation eight times; in three cases it was combined with the radical cure of an umbilical hernia. All the patients were immensely relieved.

M. H. P.

The Vaccine Treatment in the Vulvovaginitis of Children.

E. Weinstein (*Muenchener m. Wchns.*, 1910, No. 14, S. 762) has treated 28 cases of gonorrhœal vulvovaginitis in little girls by Wright's method with a gonococcus vaccine. In recent cases, young, actively virulent cultures of gonococci, 5 to 8 hours old, were employed; in chronic cases, cultures of less virulence from 1 to 3 days old. Autogenous inoculations derived from the patient herself were not employed except in very obstinate cases, in which the injection of vaccine of exogenous origin gave no results. Most of the little patients had been treated unsuccessfully, with all sorts of drugs, often for six months or more, before the vaccine was tried. Nevertheless, in every case in which the gonorrhœal nature of the disease was ascertained bacteriologically, a complete cure was obtained. The maximum number of injections for complete cure was 9, the minimum 3; they were generally administered at intervals of eight days; the cures were permanent. J. J. M.

Artificial Vagina by Intestinal Transplantation.

J. F. Baldwin (*Journ. Amer. Med. Assoc.*, 1910, Vol. liv, p. 1362) devised this operation and demonstrated it on the cadaver in 1904. He has had four cases in which he has employed this operation, the results of which were so favourable that he recommends his method of operating with great confidence. The technique of the operation is as follows:—The perineum and lower abdomen having been prepared, the patient is placed in the lithotomy position and a transverse incision is made in the perineum at a point corresponding to the normal opening of the vagina. This incision is carefully carried forwards until the peritoneum is reached. The large opening this made is lightly packed with gauze pressed in around a large hæmostat. The patient is then placed in the horizontal position and the abdomen opened in the middle line. The field of operation being protected by gauze sponges, the lower end of the ileum is brought up into the wound. The intestinal contents are displaced for about twleve inches, and this portion of the bowel is resected, but with careful preservation of the mesentery. The ends of the resected portion of the bowel are inverted with purse-string sutures. The ends of the divided bowel are connected to each other by a Murphy button so as to re-establish the continuity of the canal. The peritoneum over the floor of the pelvis is then opened, and the hæmostat, previously placed in position, is employed to catch and draw down into the artificial vagina the detached piece of bowel. The detached piece of bowel is then seized at its centre. The peritoneum over the pelvic floor is then sutured, and the abdomen closed in the usual way. The patient is again placed in the lithotomy position and the bowel opened where it had been caught by the hæmostat. Each leg of the loop is then wiped out carefully and packed with iodoform gauze so as to press it snugly against the walls of the opening. The edges of the opening into the bowel are finally stitched to the edge of the perineal skin incision. Some weeks later a septum in the artificial vagina is removed.

Baldwin has examined the ileum and sigmoid in several hundred patients with a view to ascertaining whether there would be any difficulty in drawing down a loop of gut into the artificial opening, and he found that he could use either piece of gut without undue tension in the mesentery. In addition to the four successful cases reported by Baldwin ten other successes have been recently reported. C. N. L.

Modification of the Hymen by Disease of the Genital Organs.

Jayle (*Revue de Gynécologie et de Chirurgie Abdominale*, May 1910) writes that modification of the form of the hymen by disease is a condition not usually described. The influence of local disease of the vulva is of course obvious. Atrophy of the hymen occasionally occurs associated with chronic metritis, and is probably due to the presence of an irritating discharge. Removal of the ovaries frequently gives rise to

atrophic changes in the vulva and hymen, a condition which the author has named "post-operative kraurosis." Occasionally atrophy of the hymen occurs associated with sclerosis of the ovaries. Jayle considers that this atrophy is due to absence or insufficiency of ovarian substance. A. L. S.

Prolapse of the Ureter through the Urethra.

JOHANNES HARTMANN, Jena (*Zeits. f. gyn. Urologie*, Band ii, Heft 1), reports a case of prolapse of the left ureter through the urethra of a girl, 19 years of age. The diagnosis was by no means easy, and neither vaginal nor a subsequent abdominal fixation of the bladder prevented recurrence. Finally, after sectio alta, a sausage-shaped prolapsed left ureter, about the thickness of a thumb and 5 cm. in length, was removed, the ureter engrafted in the bladder, and a permanent catheter was inserted, and the patient made a good recovery and cure.

HARTMANN gives the cognate literature from which he has collected 29 analogous cases; he also gives details of the microscopical appearances of the specimen removed, and discusses the ætiology, diagnosis and treatment of this rare affection. J. J. M.

Plasma Cells as a Criterion for the Diagnosis of Endometritis.

CECILIE MITTELMANN (I. D., Halle, 1909: *Muenchener m. Wchns.*, 1910, No. 14, S. 763), at the suggestion of Professor Veit, undertook research work which proved that inflammation sometimes causes endometric changes, which may be described as true endometritis, on account of their characteristic histological appearance. These include: (*a*) acute or subacute endometritis in which no plasma cells are found; and (*b*) chronic endometritis in which plasma cells are always present. The diagnosis of true endometritis therefore depends entirely upon microscopical examination and cannot be made upon the anamnesis. In endometritic changes, elicited by chronic non-inflammatory irritation, originating from the ovaries or otherwise, the anamnesis is of great value for the diagnosis: hypertrophia or hyperplasia mucosæ. Endometritic changes may occur which must be accepted as combinations of the two forms above mentioned: an infection or inflammation of the mucosa may supervene in a case of ovarian origin. The authoress insists that when, in spite of the symptoms hæmorrhage and pain, no endometritic changes can be detected, some ovarian influence may be inferred, perhaps too recent to have caused any alteration in the uterine mucosa. J. J. M.

Operative Technique of Vaginal Hysterectomy for Prolapse.

THOMAS S. CULLEN (*Surgery, Gynæcology and Obstetrics*, March 1910) has devised the following operation for certain cases of procidentia in patients past the climacteric. A circular incision is outlined on the everted vagina at a chosen level. The anterior vaginal wall is carefully dissected off the prolapsed bladder. The pouch of Douglas is then opened through the posterior portion of the circular incision. The left index finger, passed through this opening, is hooked over one or other broad ligament into the utero-vesical pouch, where it serves as a guide during the separation of the bladder from the supra-vaginal cervix. The vessels are then ligated and the uterus removed, with or without its appendages. The peritoneal edges are next sutured to the corresponding edges of the vaginal walls. In this way the stumps of the vessels are covered over and nothing but a small opening, lined by peritoneum, persists between the pelvic cavity and the shallow vagina. Finally, this is occluded by suturing together the peritoneal surfaces, over an area 2 to 3 cm. long. Several sutures are introduced at different levels, great care being taken to avoid piercing any of the large vessels. If necessary, the perineum should be repaired. The operation has given great satisfaction. M. H. P.

Pestalozza's Operation for Retroflexion of the Uterus.

MONTUORO, Palermo (*Zentralb. f. Gyn.*, 1910, No. 15), gives a description of the new method of operation recently devised by Pestalozza for retroflexion, with illustrations of the three stages of the operation. After laparotomy and attention to any other possible affections of the internal genitals, and ascertaining with a catheter the level to which the bladder is connected to the uterus—a fold of the serosa and some of the muscular tissue below it, about the level of the upper limit of the lower uterine segment on the anterior face of the uterus, is raised by forceps and divided transversely by scissors; the incision is extended across the whole front of the uterus and somewhat further each side at the expense of the broad ligaments. The two indices are inserted and detach a flap of the serosa and muscular tissue down as far as the crown of the bladder. The flap, as the third illustration shows, is completed by cuts from the original incision to the broad ligament, and the uterus, having been placed in anteflexion, is stitched to the fundus of the uterus in the middle line, and by as many lateral sutures on either side as are necessary to completely close the wound, not leaving a spot uncovered by peritoneum, while part of the anterior surface is twice covered, by its original serosa and by the flaps of serous and muscular tissue. A suitable pessary is worn for a week to prevent tension on the stitches. MONTUORO has performed this operation on four cases within the last few months with excellent results from every point of view. J. J. M.

Perirenal Hæmatoma.

COENEN (*Muenchener m. Wchns.*, 1910, No. 17, S. 933), at the recent meeting of the German Surgical Society, and in connection with a case treated in Küttner's Klinik, reported upon perirenal hæmatoma. This affection was first described by Wunderlich in 1856 under the term apoplexy of the bed of the kidney, but attracted little attention. Altogether 11 cases have been recorded. Their ætiology varies greatly: in 3, the bleeding depended on erosion of the renal vessels by a malignant tumour, or by tuberculosis; in other cases chronic nephritis or purulent nephritis existed and led to perirenal hæmorrhage; in one case hæmophilia was the cause. The symptoms are very characteristic: sudden attack of pain, signs of internal hæmorrhage and the formation of a retroperitoneal tumour in the lumbar region. Of the 11 cases, 9 were operated upon; 5 died and 4 recovered. The other 2 cases died. The prognosis of perirenal hæmatoma is therefore serious, and if operation be delayed absolutely unfavourable, while about 44 per cent. can be saved by operation. The affection, however, is of great practical interest on account of its serious prognosis and the certainty of its diagnosis. J. J. M.

Irrigation of the Peritoneal Cavity after Laparotomy.

EDWIN POESCHEL (I. D., Munich, 1909: *Muenchener m. Wchns.*, 1910, No. 16, S. 871) asserts that the cleansing of the peritoneal cavity, either when infected or supposed to be so, after laparotomy, by washing it out with large amounts of salt solution has never caused any harm that could be attributed to the irrigation. During that process there has never been a death or any evidence of shock. Moreover, no disturbances after the operation have ever been observed which indicated that an extended distribution of infectious germs had been set up by the irrigation. In irrigation of the peritoneal cavity, therefore, we have a method of purification which secures a remarkable degree of cleanliness and at the same time does not interfere with the physiological course of the defensive reaction of the organism. It is fundamentally more sound than dry swabbing. Since such irrigation entails no danger, its employment need not be limited to the removal of infectious

matter from the abdominal cavity; it may be accepted as the most convenient, effective and sure method of cleansing the abdomen from every impurity. Clinical evidence is entirely in favour of its universal use. J. J. M.

The Evolution of the Cervical Stump after Sub-total Hysterectomy.

MÉRIEL (*Soc. Obst. de Toulouse*, March 1910, p. 157).—The cervical stump left behind after subtotal hysterectomy may become the seat of complications. In some cases these are not of great importance, but in others extremely grave consequences may follow.

(*a*) The stump may cause leucorrhœa, the origin of which is not clear. This is a trouble rather than a danger. The hospital class of patient does not often come up and complain about it, and so the frequency is much underestimated. But the more refined the patient the more distressing will be this complication.

(*b*) The stump may be the seat of new growths, in some cases innocent and in others malignant, and at varying intervals of time.

The author points out that there are certain fallacies to be avoided. For besides those cases in which at the original operation the cervical stump was known to be healthy and yet at a later date becomes malignant, there are also others which have a different explanation.

1. The cervix may be already invaded with cancer at the time of the first operation, and the invasion may escape notice.

2. What was thought to be a fibromyoma may prove on section to be a sarcoma.

3. A granuloma of the cervical stump may be mistaken for carcinoma.

Yet in spite of these reservations the author concludes that malignant disease may attack the remaining stump in *3 to 6 per cent. of cases.*

In view of these facts he again raises the question as to the advisability of total rather than subtotal hysterectomy. One has to balance the risks of leaving the stump against the risks attending the removal. In the author's opinion the former outweigh the latter.

Subtotal hysterectomy is said to be the simpler, more rapid and less dangerous operation. Is this really so? It is more simple and more rapid in cases of large fibroids where the pedicle is difficult to reach, but in other cases it is as easy and as rapid to a total hyterectomy. The posterior vaginal method of Doyen is a rapid one. The real question is the increased risk of infection from the vagina after total hysterectomy. But this can be greatly minimised if the vagina be thoroughly cleaned out and the cervix scraped the day before the abdominal operation.

Nor do the actual figures show such a disproportion in results as might be expected :—

		Total Hysterectomy.		Subtotal Hysterectomy.	
		Cases.	Deaths.	Cases.	Deaths.
1903.	Pozzi	46	4	57	3
1900.	Terrier	93	6	19	4
1902.	Herzfeld	20	2	24	3
1901.	Redlich	231	16	—	—
1902.	Richelot	135	8	—	—
1899.	Schauta	106	16	—	—
1909.	Hofmeier	—	—	118	5
	Duncan	—	—	127	4
	Kelly	—	—	155	7
	Worwinkel	—	—	101	9

J. B.

Suppuration of Uterine Fibro-Myoma.

E. MICHON (*La Gynécologie*, Jan. 1910) describes a tumour removed by abdominal hysterectomy from a maiden lady, aged sixty-five. Her medical attendant had diagnosed uterine fibroids more than twenty years previously, but they had given rise to no symptoms. In Nov. 1908 the patient's health began to deteriorate, and she suffered from fever with an evening temperature of 39° or more. For six months this condition continued, with occasional shiverings and exacerbation of the fever, as the thermometer in the rectum registered as much as 40·6°C. (105°F.). When seen in November the patient had a well-marked tumour reaching to the umbilicus; it was easily palpable and quite fluctuant, and its indolence was notable. The physical signs were those of an ovarian cyst.

In May 1909 there was a sudden attack of pain with abdominal distension, and the tumour was found to have doubled its size. At the operation the tumour was found to be a fibroid cyst full of pus to the extent of eight litres, and the absence of all adhesions was remarkable. The fibroid had grown from the posterior wall of the uterus, and was separated from the uterine cavity by a very thin wall. The parietes of the pus cavity were so thin all round that Michon thinks the fibroid must have been cystic for a considerable time before suppuration began. There was no evidence of any gangrene or sloughing. An unfortunate accident prevented the bacteriological examination of the pus. E. H. L. O.

The Connection of Uterine Myoma with Goitre.

E. ULLMANN (*Wiener kl. Wchns.*, 1910, No. 15), referring to the frequency of goitre in women, discusses its connection with menstruation and pregnancy. In many women suffering from goitre he has observed notable enlargements of the thyroid gland, and, moreover, after operations for myomata, has seen such enlargements diminish or even disappear. Subsequent enlargement of the thyroid, however, is not thereby excluded. Occasionally the involution of a myoma in the climacterium is attended by the decrease of a goitre, but as yet there is no evidence to show that thyroidectomy causes the involution of existing myoma. J. J. M.

Implantation Metastases in the Laparatomy Cicatrix after Extirpation of Carcinomatous Genital Organs, with a Case of Primary Tubal Carcinoma with Metastases in the Abdominal Walls.

RAABE, Munich (*Hegar's Beiträge z. Geb. u. Gyn.*, Bd. xv, Heft 2) discusses the conditions essential to an implantation metastasis, the views of authors who have worked on the subject, and the cases hitherto published, and then applies his conclusions in his own case. Implantation metastases are any way exceedingly rare. The laparotomy cicatrix is a locus of choice for lymph metastases, but there can be no question of implantation metastases in the cicatrix unless there are no intra- or extra-peritoneal metastases whatever. A true implantation metastasis exclusive of lymph-metastasis has not yet been met with. J. J. M.

Statistical Notes on Cancer of the Uterus.

GAIFAMI (*Annali di Ostetricia*, March 1910), in view of the importance of early diagnosis of cancer of the uterus, publishes the statistical results of clinical researches made in his hospital at Rome during the last two years. His observations led him to the conclusions that (1) in Rome cancer of the uterus represented 2·5 per cent. of all genital lesions. Heredity could be traced in 17·9 per cent. of the cases—more precisely in 26 per cent. for cancer of the body and in 6 per cent. for cancer of the cervix. The average age of occurrence was about 48 years. (2) In the cases of

cancer of the cervix, each patient had had on an average 5–8 pregnancies. In the cases of cancer of the body 33 per cent. had been sterile. In 18 per cent of the cases there had been antecedent genital disease. In 6 cases this was gonorrhœal in character. Four cases occurred in syphilitic women, and in two with the coincidences described by Martin. Association of cancer with fibroma could be noted in 21 per cent. of the cases; taking into account only the cases operated on, and therefore the only cases in which the diagnosis was certain. In 26 per cent. of the cases there was an accompanying pregnancy. The average age of the pregnant women was 34 years, and each had had on an average seven previous pregnancies. (3) In 5·9 per cent. the first symptom noted was metrorrhagia or menstrual irregularity; in 38 per cent. leucorrhœa; in 1·4 per cent. pain. The average time which elapsed between the first noting of symptoms and consulting a doctor was a year longer at or after the menopause than before it. (4) Operability for cancer of the body reached 83 per cent.; for cancer of the cervix scarcely 19 per cent. Association with fibroma raised the operability 80 per cent. J. H. F.

Fulguration and its effects in Gynæcology.

Richter, Dresden (*Muenchener m. Wchns.*, 1910, No. 17, S. 891), discusses the limits and mode of application of de Keating-Hart's method of fulguration, and describes, with illustrative cases, the results obtained with it in Leopold's Klinik. The cases upon which it was employed were: (1) carcinoma of the uterus on the borders of operability; (2) inoperable uterine carcinoma; (3) cases of recurrence after vaginal extirpation or the Freund-Wertheim operation. Of 9 cases in the first category, 3 improved sufficiently to be operated on by the abdomen; vaginal extirpation was attempted on 3 others, but had to be abandoned. There were 31 cases in the second category and 5 in the third—4 after vaginal, 1 after abdominal extirpation; only 1 has died, 5 months after the beginning of the treatment; the others are living, on the average 13 months after the beginning of the treatment.

Richter concludes: (1) Fulguration cannot ensure any permanent benefit, but its palliative effects are very remarkable; (2) as the fulguration of *decayed* uterine carcinoma can be effected without narcosis this method of treatment is to be preferred to cauterization; (3) fulguration relieves the pain for a considerable time; it arrests the hæmorrhage and, temporarily, the putrid discharge; it acts best when combined with acetone treatment; (4) in Leopold's Klinik, therefore, they will employ fulguration in place of cauterization in inoperable carcinoma, and, on the ground of the brilliant results Keating-Hart has obtained, use it freely, in combination with surgical measures, in superficial cancers of the vulva, vagina, mamma, etc. J. J. M.

Extraperitoneal Vaginal Extirpation of the Carcinomatous Uterus with Adnexa and Parametria.

Rieck (*Muenchener m. Wchns.*, 1910, No. 13, S. 716), at the Hamburg Medical Society recently, claimed that the mortality of vaginal extirpation of the carcinomatous uterus, which for the extended vaginal operation (Schauta) still amounted to from 10 to 20 per cent., could be reduced to from 3 to 5 per cent. and a reconvalesence, hitherto never known, secured free from any signs of peritoneal irritation.

Seeligmann doubted whether the method described could be carried out when the parametria were infiltrated. The cardinal point, however, is the question whether for cancer of the uterus one should operate by the abdomen or by the vagina. Most gynæcologists, Schauta and Staude excepted, have turned to laparotomy, on the ground that it is only by this way that it is possible to extirpate the glands, a proceeding on the value and necessity of which absolutely nothing is known. It is only in carcinoma of the fundus that the vaginal way is indicated, and for such Rieck's method may no doubt be successfully employed.

Staude summarized the results of his vaginal operations: he had done 124, and among the last 31 he had had only 3 deaths; that is to say, a mortality of 9 per cent. During the last four years there had been no injury to the urinary organs. The permanent cures (for 5 years) were 41 per cent., or by Winter's statistical method 25·6 per cent. (5 to 14 years), and the high operability had remained the same. J. J. M.

The Diagnosis and Treatment of Uterine Sarcoma.

N. Kakuschkin, St. Petersburg (*Zentralb. f. Gyn.*, 1910, H. 10), shows, from recorded cases, that in several instances the conservative treatment of uterine sarcoma, that is to say, the removal of the new growth only, instead of panhysterectomy, has been followed by freedom from recurrence for years. He describes a case in which a fibromyomatous polypus of the uterine mucosa, with sarcomatous degeneration, was simply extirpated, and the uterus curetted and wiped out with tincture of iodine. The woman, 39 years old, is now, after eight and a half years, alive, and has no recurrence. Kakuschkin, while he does not recommend conservative operation for uterine sarcoma generally, holds it to be permissible when it is easy to perform, and the patient can be kept under constant observation. J. J. M.

Retroperitoneal Tumour.

Marck, Olmutz (*Zentralb. f. Gyn.*, 1910, No. 17), reports an instance of a tumour of rapid growth, in the hypogastrium of an anæmic and badly-nourished secundipara, 27 years of age. It was diagnosed as a solid malignant ovarian tumour. On laparotomy this huge tumour was found to lie behind the peritoneum and to have caused enormous dislocation of the intestines. It was removed through the abdominal cavity, and weighed over 14 lbs. 5 ozs., and proved to be a lipofibroma with diffused sarcomatous degeneration.

Marck discusses two analogous cases. From their rarity and from the absence of any specially characteristic symptoms, diagnosis is hardly possible before operation. J. J. M.

Acute diffuse Suppurative Peritonitis from a Ruptured Pus Tube.

J. Wesley Bovée (*Surgery, Gynæcology and Obstetrics*, April 1910) reports the following:—A woman, aged 38, who had been confined four months previously, was seized, during coitus, with acute pain in the right iliac region. Shortly afterwards, when seen by a doctor, the pain was less severe, and her temperature and pulse-rate were normal. During the next three days the temperature varied from 100° to 103·6°, and the pulse-rate from 84 to 120. When Bovée saw her the temperature was 101·6°, and the pulse 100; she complained of severe pain in the right inguinal region; careful bimanual examination revealed nothing abnormal. She was transferred to hospital for observation. The leucocyte count was 23,100. Next morning she was apparently progressing towards recovery. Late in the afternoon she was again seized with violent pain in the right inguinal region, followed by a chill and collapse. In the evening the abdomen was opened, a considerable quantity of thin sero-purulent fluid escaping. The right tube, from one to one and a half inches in diameter, was found ruptured. It was exceedingly friable, and had to be removed in pieces. A gauze vaginal drain was inserted. Continuous rectal saline infusion was employed. She died 54 hours after the operation. Bovée refers to C. W. Bonney's recent paper (see abstract, *Journal of Obstetrics and Gynæcology of the British Empire*, Vol. xvii, p. 56), and agrees with him that in early operation lies the only chance of saving these patients. Bovée tabulates 56 cases, including 17 which were not in Bonney's list. M. H. P.

On the Necessity for Forensic Instructions in regard to the Induction of Abortion.

THORN, Magdeburg (*Zentralb. f. Gyn.*, 1910, No. 15), in an address delivered to a recent meeting of German gynæcologists at Halle, insisted on the necessity for legal pronouncement of the principles upon which abortion may be induced. He suggested the following addition to the German penal code :—The interruption of pregnancy by the medical attendant is not punishable when it is done with the consent of the pregnant woman to protect her body and life from danger. It is, however the duty of the medical attendant, in order to determine whether such a danger exists, and whether it can be averted by the induction of abortion, to insist on the opinion of another physician of independent standing. J. J. M.

Changes in the Organs of Internal Secretion during Pregnancy and the Puerperium.

CIULLA (*Annali di Ostetricia*, March 1910) reports the results of numerous histological and chemical investigations made on animals in different periods of pregnancy and the puerperium. The chief facts which he has observed are :—

1. The supra-renal capsules, the pituitary body and the thyroid glands become hyperæmic and hypertrophic during pregnancy. The cellular elements enlarge and their granular contents increase in number and in size. There is increase in the quantity of fat secreted and change in its nature, being mainly composed of lecithin, not of stable fat. Pigment cells increase in the supra-renals. In the pituitary body and in the thyroid there is increased secretion of colloidal substance. During the puerperium the cells of the supra-renals return, comparatively to their normal condition; but in the pituitary body and the thyroids the changes continue, though with lessening intensity, during lactation; and in the case of the pituitary body restitution to the normal state is never complete.

2. The parathyroids show no increase in functional activity during pregnancy; but this occurs during the puerperium, and is indicated by the fundamental cells becoming larger than normal and showing a large clear nucleus.

3. In the ovaries, the corpus luteum and the interstitial cells seem to be the chief elements of internal secretion. They show changes in pregnancy and in the puerperium similar to those noted in the organs already mentioned, but there is no trace of colloidal secretion.

4. The liver becomes hypertrophic and hyperæmic, showing changes in the cells of Küppfer and in the hepatic cellular elements. The first show increase in fat granules; yellow granules appear, giving the reaction of iron; and black or brown granules, giving the reaction of purin bodies. The hepatic elements show the same changes, and in addition increased quantity of granules containing glycogen. This is not present in the cells of Küppfer. In the puerperium all the cells return, though not quite completely to their early condition. Fat continues extraordinarily abundant.

5. The islets of Langerhans become larger and more granular as pregnancy advances, returning slowly to the normal during the puerperium.

As a result of these observations Ciulla concludes that the increase in functional activity of the organs, with internal secretion, is not specific in nature, but constitutes an index to a toxæmia induced by pregnancy, to counteract which the organs raise their antitoxic protective power. Probably many disturbances observed in normal pregnancies, the so-called sympathetic phenomena, and many pathologic states occurring during pregnancy are due to alterations, congenital or acquired, in these organs. J. H. F.

Sialorrhœa Gravidarum.

Boissard (*L'Obstétrique*, Jan. 1910) states that excessive salivation is not very uncommon in a mild degree during the early months of pregnancy, and may then be called ptyalism. The really grave cases of sialorrhœa are, fortunately, rare, for the loss of weight in the patient may be so rapid as to require the induction of labour. In a patient described in the paper the loss of weight, in spite of treatment, was no less than 13 kilogrammes in seven days. The writer seems to have much faith in ovarian extract to check the loss of weight and the salivation, but the evidence refers to too few cases to be conclusive. In view of the results of treatment, he concludes that the symptom is caused by insufficiency of the ovarian secretion. E. H. L. O.

Pyelonephritis of Pregnancy Causing Death in Spite of Induction of Premature Labour.

Saurage (*Soc. d'Obst. de Gyn. et de Pæd. de Paris*, 1910, Vol. xii, p. 122).—This observation is deserving of a careful study, for it is one of the rare cases resulting in death both to mother and child.

The patient was a primipara, aged 26 years. The last regular period ended Sept. 5 1908, since then pregnant. During the 7th month of pregnancy she developed an irregular temperature and passed albumen and pus in her urine, and became rapidly emaciated. The right kidney region was tender. No other abnormality was noted. The fœtus presented by the vertex, with the occiput in front. A ureteral catheter found the left ureter and kidney normal, but the right ureter almost occluded and purulent. (The causative organism is not stated.) The pregnancy was terminated on April 8 1909. The infant was born living, but died 20 days later from prematurity. The mother did not improve in any way, and one month later nephrostomy was performed upon the right side. The pelvis of the right kidney was found to be dilated and to contain pus, and the ureter was kinked. Improvement followed, but, owing to a pulmonary infection, the woman died nine days after operation.

(*a*) In pyelonephritis of pregnancy compression of the pelvic portion of the ureter can cause kinking in the upper portion as in experimental ligature.

(*b*) The kinking so produced may serve as a persistent obstacle to the flow of purulent urine.

(*c*) In such cases evacuation of the uterus may prove ineffectual, and surgical intervention become necessary.

(*d*) Were it possible to diagnose such cases nephrostomy during pregnancy would be justified. J. B.

On the Presence of Lactic Acid in Eclampsia.

A. ten Doesschate (Utrecht Thesis, 1907; reference, *Zentralb. f. Gyn.*, 1910, No. 5), experimenting on the hypothesis of Zweifel that lactic acid is the cause of eclampsia, made examinations of the blood and urine. He found the acid in the maternal, fœtal and placental blood, with traces in the urine in cases of eclampsia, in epilepsy and in extreme dyspnœa, but not in normal persons. The lactic acid is the result and not the cause of the convulsions. E. H. L. O.

Eclampsia Gravidarum and the Paresis Puerperalis of Cows: Suggesting a New Method of Treatment.

Gottfried Persson (*Muenchener m. Wchns.*, 1910, No. 12, S. 656) compares eclampsia gravidarum with the paresis of cows after calving, and finds many analogies in their symptomatology. He has therefore tried a new method of treating eclampsia by manual stimulation and milking the breasts in four cases, and has had good results.

He supposes the cause of eclampsia to be a disproportion between the amount of the constituent elements of milk circulating in the maternal blood and the capability of the fœtus to make use of them. J. J. M.

Hæmaturia and Pregnancy.

Grosse (*Revue Mensuelle de Gyn. d'Obst. et de Pæd.*, March 1910, p. 143) divides up the cases of hæmaturia in association with pregnancy into two great classes :—

1. Hæmaturia produced during pregnancy, due to several conditions, possibly aggravated by the accident of pregnancy, *e.g.*, tubercle, lithiasis, new growth and hæmophilia.

2. Hæmaturia of pregnancy, in which the bleeding is entirely due to the pregnancy.

Only the latter group merits the name of hæmaturia of pregnancy.

The clinical features are:—

(*a*) The appearance of hæmaturia in a pregnant woman who has been normal previously.

(*b*) It usually occurs after the 4th or 6th month.

(*c*) It usually ceases with the termination of the pregnancy in the course of a few days.

(*d*) The urinary tract appears normal. Hæmaturia can therefore occur without any appreciable lesion of the kidney, bladder or ureter.

The pathology of the condition is next considered, and the author brings forward views. Where the blood comes from the bladder it may be due to a venous congestion of that viscus owing to the pregnancy. When the blood comes from the kidney it may be again due to venous congestion of the kidney, partly by the pressure of the uterus upon the abdominal vessels and also upon the ureters. Or, on the other hand, it may be the result of a toxæmia.

The prognosis is nearly always good.

The treatment. Should medical measures fail the author advises decapsulation of the kidney rather than puncture of the amniotic membrane in order to relieve congestion. If, however, the case is a serious one he advises that the uterus should be evacuated at once. J. B.

Chloruremia during Pregnancy and Eclampsia.

Javal (*Soc. d'Obst. de Gyn. et de Pæd. de Paris*, 1910, Vol. xii, p. 128) reports the result of observations made upon 10 cases of eclampsia, and comes to the conclusion that there is a definite chloride retention in the blood of eclamptic patients. He further states that there is a disposition to chloruremia towards the end of quite normal pregnancies apart from eclampsia. J. B.

Death of Fœtus in Utero during the ninth month owing to the taking of Absinthe.

Vidal (*Soc. d'Obst. de Toulouse*, March 1910, p. 145) reports a case of this nature. On three consecutive days large doses of pure absinthe were taken by the mother. Up till this time the fœtus was alive, but no movements were felt afterwards. A fortnight later a dead fœtus was delivered. There was no sign of syphilis or of albuminuria in the mother.

Vidal considers the most common cause of fœtal death *in utero* to be syphilis, and alcoholism to be the next important cause. J. B.

Prognosis of Hydatid Mole by Examination of the Decidua.

Durante and Paquy (*La Gynécologie*, Jan. 1910) refer to Brindeau and Nattan-Larrier, who recently published a paper in which they drew special attention to the modifications of the syncytium and of Langhans' layer in the production of moles.

The present paper deals rather with the changes produced in the decidua, and in several particulars these authors disagree. Durante and Paquy attribute the growth of the mole to an original failure of the fœtal blood-vessels in the villi. Nutritive materials which should go to the fœtus are unable to pass through, and cause hypernutrition of the syncytium. But in spite of its hyperactivity the epithelial covering of the villi remains in physiological relation with the subjacent mesoderm; the vesicle of the hydatid remains an organ; the villus, though diseased, is still a villus, represented by its mesoderm with its epithelial lining. The mole may, accordingly, be called an adenoma of the placenta, rather than a malignant tumour. The epithelium may degenerate, and the mole thus may become fibrous. As in adenoma, the epithelium may vegetate and invade the maternal blood-vessels, and so become a deciduoma malignum, or epithelioma of the placenta. Accordingly, if it be true that a large proportion of deciduomata maligna have been preceded by moles, the converse is untrue. Few moles are followed by deciduoma malignum, but are extruded entire. Further, as other epitheliomas arise from glands that are not adenomatous, so deciduoma may arise from placental remains that are not molar.

It might have been expected that the activity of proliferation of Langhans' layer might be a criterion of malignity, but experience shows this not to be so, as Brindeau and Nattan-Larrier themselves point out. More important are the depth of implantation of the placenta and the resistance of the uterine wall. In general terms the mole is, if anything, less deeply implanted than the normal placenta. The resistance of the uterine wall is brought about by means of the decidua, a specialized false membrane, offering a barrier to invasion, and, later, by its desquamation assuring the elimination of invading elements.

A description follows, with plates, to illustrate the differences between the normal and molar deciduas. The infiltration noted by Brindeau and Nattan-Larrier as a sign of infection is considered rather a sign of reaction against the invasion. Histological examination of a mole should be directed specially to the decidua, for the more it is thickened and infiltrated with small round cells—in other words, the greater its reaction—the more favourable the prognosis that deciduoma is unlikely to follow. E. H. L. O.

Pelvis of the Masculine Type.

Gilles and Bernardin (*Soc. d'Obst. de Toulouse*, March 1910, p. 146) report a pelvis of this nature in which the contraction is uniform throughout all the diameters of the pelvis and in which the bones are thickened as in a male pelvis. J. B.

Pregnancy in a Pygopagous Twin.

Trunecek (*La Semaine Médicale*, May 18 1910) publishes a full report of an incident unparalleled in the annals of obstetrics. In 1891 the pygopagous twins, Rosa-Josepha Blazek, then thirteen years of age, went on tour. Millie-Christine, the "two-headed nightingale," mulatto girls from the southern United States, had already appeared in public in 1871. Baudoin published a complete report of the Blazek twins when they exhibited themselves nineteen years ago in Paris, where they were styled *le pygopage du theâtre de la Gaité*, and that report is re-published in the *Semaine Médicale* after Trunecek's article. On April 15 1910 the twins, who have reached the mature age of thirty-two, applied for medical advice at the surgical clinic of the general hospital at Prague. Rosa had an abdominal swelling. She denied the possibility of pregnancy, her sister supporting that denial, but the resident medical officer, having no precedent for relying on the word or words of a pygopagous twin, and the value of a pygopagous sister's evidence, sent for Professor Pitha to examine the case. Before that authority could visit the hospital Rosa gave birth, on April 17th, to a well-formed male child, which, it seems, is likely

to do well. No medical attendant was present, the puerperium was normal and the twins made a good recovery. The child was delivered easily, the pains were not strong. On the twelfth day Pitha examined the twins. He found that they were joined posteriorily by a single, very broad sacrum, and by the ilia. The distance between the anterior superior iliac spines was 21 centimetres in the nullipara Josepha, and 20 centimetres, or over 7¾ inches in the puerpera Rosa. The distance between the trochanters was, in Josepha, 27 centimetres, or nearly 11 inches. The mammæ in both twins were well-developed and secreted milk, and the nipples and linea alba were pigmented in Josepha as well as in Rosa. Linæ albicantes were seen on the abdomen of Rosa only. The sisters are accustomed to lie on one side, Rosa's left and Josepha's right. Inspection of the external organs proved quite easy. The labia majora were, as might be expected, united at the symphysis and ran backwards, but each labium was continued into the opposite labium of the other twin. Hence the two labia majora enclosed a lozenge-shaped space, inferior to which, when the twins lay as noted above, was the perineum and the anus; the lower two inches of the rectum were common and desire to defæcate was simultaneous. Within the lozenge-shaped space the labia minora and introitus vaginæ had undergone a remarkable rotation upwards (as the twins lay in their usual position) and inwards so as to be absolutely fused. The single clitoris lay uppermost, not under the parting of the labia majora in one twin, but under the junction of the right labium majus of the parturient with the left labium majus of the nulliparous twin. Thus the clitoris lay opposite the anus, but within, not outside, the labial lozenge, and rotated 45 degrees from its normal site under the symphysis. The meatus urinarius was wide transversely, but lay in normal relation to the clitoris, the lower or common part of the urethra was over an inch long, and then bifurcated into two very short canals each with a distinct sphincter. There were two bladders, and desire to micturate was distinct in the twins. Rosa the puerpera and the more experienced of the pair, had undergone lithotrity a few years ago, and Pitha detected, by aid of the cystoscope, evidences of cystitis. The labia minora formed a single pair running from the clitoris normally, but, owing to the rotation of these structures, the right ran not antero-posteriorly, but in the transverse axis of Josepha's body, and the left ran in the same axis of her sister's.

The introitus was heart-shaped but asymmetrical, as the vagina was widest in the parturient twin. There was, within the introitus, a laceration, which ran through a distinct septum, on Rosa's side, but the posterior wall of the vagina on Josepha's side was the seat of another laceration which came close to the perineum. The septum had evidently been complete before delivery, the mucosa on Rosa's side was smooth and lax as in normal puerperæ, the vaginal mucosa on Josepha's side bore rugæ, and was otherwise of the nulliparous type. The uterus of Rosa was as big as a fist, the cervix was lacerated at two points. In Josepha the uterus was markedly nulliparous in shape and in its distinct anteflexion, with ill-development of the cervix.

The dimensions of the pelves could not be defined with accuracy, not only on account of the abnormal relations of the bones, but also because of the extreme shortness of the vagina and the resistance of the abdominal walls. Trunecek's report deserves careful perusal. The author gives diagrams to demonstrate and explain the strange anomaly apparent in the outer organs, the distinct labia majora in normal position enclosing the absolutely single clitoris, labia minora and meatus urinarius. Lastly, Marcel Baudouin's re-published report of the twins as they were when examined in 1891 is of high interest, and includes a review of the entire subject with notes on reports of other cases of pygopagous twins. All were, it appears, females. Helen-Judith and Barkow's case were both born in Hungary; Treyling's were natives of Carniola; Rosa-Josepha was (or were) born at Skreychov, in Bohemia. Wolff reported a case from Russia, but the twins died in infancy. The large proportion coming from Central Europe is remarkable, and it would be interesting to know

whether the two Hungarian pygopagæ were not Magyars and Turanians, but Slavs, and therefore Aryans like the others. Lastly, the tuneful, if not classically beautiful, mulatto twins Millie-Christine had already retired from public life when Baudouin's report was first issued. A. D.

Shaving of the Vulva in Labour.

J. Reich, Innsbruck (*Zentralb. f. Gyn.*, No. 9, 1910), draws attention to a recent paper by Gottschalk, who recommended that all midwives should be taught to use the razor, and should be made to shave the vulva in all cases of labour. Reich considers this somewhat dangerous advice in view of the dark and dirty surroundings amid which the midwives work, and of the heaviness of the average midwife's hand. It is difficult enough at times for a skilled accoucheur to shave a vulva without causing abrasions, and there is more danger of infection from an abraded vulva than from an unshaved one. A very small cut in a varix might lead to dangerous or even fatal hæmorrhage. The midwife should not do more than clip the air short and wash the part thoroughly. E. H. L. O.

The Treatment of Placenta Prævia.

J. Olow (*Zentralb. f. Gyn.*, 1910, No. 13) reports upon 41 cases in the Lund Frauenklinik. The treatment adopted was: in head presentations and placenta marginalis, rupture of the membranes; in head presentations and placenta prævia partialis sive totalis, Braxton-Hicks' version; in breech cases, bringing down a foot. One mother died, and 18 out of 44 children; a maternal mortality of 2·4 per cent. and a fœtal of 40·9. Olow thinks that in the treatment of placenta prævia in the future much more use will be made of rupture of the membranes and metreurysis, and also that in individual and rare cases, Cæsarean section will be considered.

J. J. M.

Enlargement of the Pelvis without Operation.

Tjeenk Willink, Amsterdam (*Zentralb. f. Gyn.*, No. 5, 1910), describes a series of cases in which he was able to obtain a considerable increase in the length of the conjugata vera by placing a firm cushion under the patient's lumbar region just above the buttocks. The position thus produced is not comfortable, but can be borne for an hour or more by a woman with strong pains; the Walcher position, with the legs hanging down, is intolerable without narcosis. In the cases described the head had been movable above the brim, and remained so in spite of strong pains till the patient's position was changed, when labour proceeded rapidly. By this method half a centimetre of *conjugata diagonalis* is gained—not much, but in many cases sufficient.

E. H. L. O.

Conservative Cæsarean Section Complicated by Post-operative Evisceration.

Audebert et Fournier (*Soc. d'Obst. de Toulouse*, March 1910, p. 151) report two such cases. In the first the abdominal wall gave way and the intestines protruded on the fourth day after the operation. The cause was a persistent cough. The patient died. In the second the abdominal wall gave way and the intestines protruded on the ninth day after operation. The cause was an attack of vomiting. The patient recovered. The authors deny that the wounds, which were septic, gave way on this account, and advise that the abdominal sutures should remain *in situ* for 14 days.

J. B.

Indications and Conditions for the Performance of Cæsarean Section in Cases of Contracted Pelvis.

S. Cholmogorow (*Muenchener m. Wchns.*, 1910, No. 14, S. 759), on the basis of his experience in the Lying-in and Foundling Institution at Moscow, comes to the following conclusions:— In cases of absolute contraction of the pelvis at term, Cæsarean section becomes a duty, even when the child is known to be dead. Indispensable conditions for the performance of Cæsarean section upon relative indications are the conviction that the child is alive, and the expressed wish of the mother to have a living child; and under these conditions Cæsarean section is to be preferred to all other alternative operations, for neither artificial induction of labour nor pubiotomy give such a high percentage of living children. The upper limit for the performance of Cæsarean section on relative indications according to the author, is a true conjugate of 7 cm. in flat pelves, and one of 7·5 cm. in generally contracted pelves. He reports 15 cases in which the operation was successfully performed as regards the mother. J. J. M.

Five Cases of Hebotomy.

Holländer, Kassa, Hungary (*L'Obstétrique*, April 1910) relates his experience of this operation, and gives details of five cases. In one of these cases the child presented by the breech and was born dead, but Holländer thinks that podalic version may be performed in suitable cases: in breech presentations it is impossible to estimate the relative sizes of head and pelvis. In another case there was imminent danger of rupture of the uterus; the woman was a 2-para, and had been delivered by craniotomy at her first confinement. On this occasion hebotomy failed to enlarge the pelvis and labour was terminated again by craniotomy. The pelvis was obliquely contracted, and a cicatrix over the sacro-iliac joint suggested an inflammatory anchylosis sufficient to prevent expansion of the pelvis.

Holländer prefers Döderlein's subcutaneous operation, and concludes that the operation is one only for hospital practice. He still thinks craniotomy on the live child to be occasionally justifiable. E. H. L. O.

The Results of Irrigating the Uterus in Childbed Fever.

Hermann Schlüter (I. D., Strasburg, 1910: *Muenchener m. Wchns.*, No. 13, S. 712) describes the technique of irrigating the uterus as practised at the Strasburg Klinik in childbed fever. The woman is placed on her back across the bed, her hips at the edge; before the irrigation is begun a test sample of the intra-uterine secretion is taken, to obtain which the portio, without any preliminary disinfection, is exposed between anterior and posterior retractors and seized in a Muzeau forceps. The secretion is abstracted by a Doederlein tube which is introduced into the uterus closed, its point being controlled by the hand placed on the abdominal wall which is covered with sterile cloths. The tube is then opened, and under continual external control the uterine wall is carefully abraded in several places, and the tube is then closed and withdrawn. Birchoff's double channel uterine catheter is then introduced and the uterus washed out with from 2 to 3 litres of some suitable fluid, a 1 or 2 per cent. solution of lysol, a 5 to 10 per cent. solution of peroxide of hydrogen, or, more rarely, with a solution containing 5 to 7 per cent. of formalin and 60 per cent. of alcohol. The experience of the klinik shows that the value of these irrigations is dependent upon the bacteriological examination of the secretion removed, with the precautions described, from the uterine cavity; irrigation of the uterus is contra-indicated when there are streptococci in the secretion, but Schlüter would not omit it in any case of puerperal fever in which the inoculated plates remained sterile, or only exhibited colonies of other germs than streptococci. On the other hand, the general

practitioner, who as a rule cannot avail himself of bacteriological examination of the lochia, will do well in cases of childbed fever which do not yield to vaginal irrigation and the administration of ergot to wash out the uterus, and continue to do so unless no benefit results, when he may abstain on the supposition that there is a streptococcic endometritis for which irrigation of the uterus is harmful rather than beneficial.

J. J. M.

The Treatment of Puerperal Affections with Collargol.

D. Popow (*Muenchener m. Wchns.*, 1910, No. 14, S. 761) has successfully treated 36 cases of puerperal fever of a septic or pyæmic nature with collargol, most of the cases being very severe ones. He has found the favourable effects of collargol evident even in the serious forms of puerperal fever with streptococci in the blood, not only when the drug was administered intravenously or subcutaneously, which are the better ways, but also when it was applied in clysters, vaginal globuli or as Credé's ointment, though the last is to be less recommended on account of its slower absorption. As a rule the collargol treatment brings about a very great improvement in the subjective condition of the patient, an increase in appetite, more sleep and more active function of the intestines as well as the disappearance of headache, anxiety, nervous unrest, distressing thirst and general weakness. The sudden fall in temperature noticed in some cases is, as a rule, accompanied by an improvement in the pulse, which becomes fuller and less frequent.

[Popow's conclusions in favour of collargol are contrary to the experience of most obstetricians. v. Schickele, *Muenchener m. Wchns.*, 1910, No. 16, S. 864.]

J. J. M.

The Principles Underlying Infant Feeding.

Paul and Delmas (*Revue Mensuelle de Gyn. d'Obst. et de Pæd.*, March 1910, p. 113) discuss the various methods of infant feeding, both natural and artificial.

J. B.

Caloric Requirements during the First Year of Life.

Lassablière, Paris (*L'Obstétrique*, April 1910) describes his experimental researches on this subject (le besoin d'énergie). He found no similar observations recorded over so long a period, and defines his methods. The value of the milk was estimated from a sample of the *whole* of the breastful, taking particular note of the asymmetrical value of the breasts. The area of the child's surface is difficult to estimate, and was calculated from exact measurements by specially designed instruments. Lassablière thus established two new formulas, in addition to the old one, that surface $= 10{\cdot}5 \sqrt{\text{weight}^{\,2}/_3}$; namely, $S = 2{\cdot}3 \times p^2$, where p = circumference of chest, and $S = {\cdot}92 \times T^2$, where T = length of child; the weights and measures are of course metric and give the surface in square centimetres. The observations were made throughout on healthy children, growing normally in length and weight.

The food of the infant must respond to three requirements—the repair of tissue waste and of body heat and growth.

The actual loss of heat was measured directly by a calorimeter, and was estimated indirectly from the food consumed; the results are tabulated for surface area and for weight. A litre of human milk yields on an average 700 calories, of which 670 are utilizable. This is compared with cows' and goats' milk, both of which are better than asses' milk. As a result of his observations, Lassablière states that an infant, in the first ten months, requires more than the 100 calories per kilo hitherto thought sufficient. It is to be noted that the same proposition holds true of the consumption of oxygen, which is considerably greater than is theoretically necessary. There is a *respiration de luxe*, and to have *enough* food and air it is necessary to have *too much*.

The loss of ingested calories by the fæces and urine is about 6–8 per cent., a lower figure than that given by most observers. After the first four months, during which it is rather higher, the number of calories fixed in the tissues is less than that lost by the gesta. The quotients of calories utilized, fixed and consumed, is given in tables, showing that at first the quotient of fixation is high, gradually diminishing, while that of the calories consumed rises. In the adult, when growth has ceased, most of the calories ingested are utilized in the production of heat and work. The observations throughout were on breast-fed children. E. H. L. O.

Meningeal Hæmorrhage in an Infant.

Audebert and Baux (*Soc. d'Obst. de Toulouse*, March 1910, p. 147).—The hæmorrhage is of interest in that it occurred after a spontaneous and normal labour. Neither the forceps nor version was employed. Lumbar puncture was performed, but the fœtus died. J. B.

Injuries to the soft parts of the Infant in the Course of Birth.

Lesser (*Vierteljahrschrift f. gerichtl. Med.*, etc., 1910, Band xxxix) had to determine forensically whether, in a new-born child, secretly delivered by an unmarried mother, who stated that it had been born dead, hæmorrhages and serous infiltrations present in the skin, subcutaneous and deeper tissues of the head, neck, trunk and limbs, were entirely, or at least chiefly, results of the labour. To determine this question he performed a large number of autopsies on prematurely born infants: in several children born head first, he found superficial and subcutaneous hæmorrhages, sometimes with, sometimes without, œdema; moreover, subcutaneous œdema, and also hæmorrhages in the muscular tissue; similar lesions were found in foot and breech cases. He therefore gave, as his expert opinion in the case before the court, an affirmative answer to the question submitted to him. J. J. M.

Thèses de Paris.

Treatment of Spasmodic Contractions of the Uterus during Labour (*Contracture utérine*), Gaignard (Michalon, 1910).

Disturbances of micturition by uterine fibroids. Minvielle (Rousset, 1910).

Ultimate results of early feeding methods. Simon (Rousset, 1910) finds that as adults those brought up on the breast are taller than the bottle-fed, but lactation prolonged beyond 13 months, hinders the growth of the suckling. Breast-fed women menstruate earlier. The breast-fed suffer less from gastric troubles.

Thèses de Lille.

Antenatal puericulture in the North of France (1909). Patou gives results obtained at Wasquehal.

Treatment of puerperal infection by fixation abscess (1909). Vouters describes the methods, especially that by injections of colloid silver.

Assistance of necessitous infants at Lille (1910). Delplanque. Somewhat similar to Patou's thesis, methods in use and those desirable. E. H. L. O.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Obstetrical and Gynæcological Section.

Meeting held Thursday, March 10, 1910, the President (Dr. Macnaughton-Jones) *in the Chair.*

Mr. T. Carwardine gave a demonstration with the epidiascope of a series of micro-photographs from a case of

Ruptured Tubal Pregnancy,

specially prepared to show certain features of the syncytium, which are probably of considerable importance in the physiology and pathology of the embryonic vesicle. The specimen was taken from a patient, aged 29, who was operated upon about twelve hours after the rupture.

The earlier slides included sections through the Fallopian tube at the point of rupture and elsewhere; the chorionic vesicle, and sections from various parts of its wall were demonstrated, the membrane being thicker where the villi were most developed. Under a high magnification the general arrangement of the villi was shown and the manner in which the investing epithelium is generally beset with cell processes, to which attention was directed. One specimen of a chorionic villus revealed the origin of multinucleated wandering cells from the fœtal epithelium having cell processes also, which, where not coagulated by the hardening reagent, were of a delicate silken character embracing a red blood corpuscle at one place. Some of the wandering cells were attached, others free. A section near the point of rupture showed indications of the "cell sheet," also numerous cells derived from the trophoblast invading the blood clot and undergoing amitotic cell division. They resembled the invading cells seen in the tissues outside a chorionepithelioma. Villi in contiguity showed great diversity in the characters of the epithelial coverings; one might have a cap of squamous elements; another, columnar cells with brush-like free edges; a third, varieties of epithelial type, from the cubical or columnar cell to irregular multinucleated protoplasmic masses all having cell processes. A typical illustration was given of such a section, which indicated the origin of Langhans' layer from the syncytial cells; and attention was drawn more particularly to the origin from the syncytium of masses of nuclei having numerous processes, the nuclei undergoing division. Such a mass is found free in the intervillous space, and in all probability has important significance both in the physiological condition and in chorionepithelioma, and in support of this suggestion a drawing in Teacher's monograph was referred to, a portion of which gave similar indications, though not so clearly as in the photograph exhibited.

Dr. Russell Andrews read a paper on

Carcinoma of the Cervix of a Prolapsed Uterus in a Patient, æt. 86, with a Contact Carcinoma of the Vulva,

which appeared in full on p. 234 of the March number.

Dr. McCann said that he had not seen an example of cancer of the cervix associated with prolapse of the uterus. He had, however, seen examples of "contact infection" in the labia and posterior vaginal wall. In the latter position a cancerous cervical growth, polypoid in character, had produced infection at its point of contact with the vaginal wall, a portion of sound tissue existing between the contact growth and the cervix. It was difficult to assert with confidence that contact infection was the correct explanation in many cases, for it was more probable that direct spread

along the lymphatics was the real cause. Indeed, what was most remarkable was that contact infection was so rare when all the conditions favourable for its occurrence were present.

Dr. G. Blacker had seen one case of prolapse of the uterus in which there was a carcinoma of the cervix so extensive that the cellular tissue was involved to a considerable degree, and the uterus could not be replaced. In view of the important part that chronic irritation had been shown to play in the production of carcinoma, it was a most curious fact that carcinoma of the cervix was so uncommon in cases of prolapse. He had never seen any adequate explanation of this fact. Might it be associated with the very poor and sluggish circulation through the vessels of the cervix, which was a condition present in bad cases of procidentia uteri?

Dr. Russell Andrews also read a paper on

Myomectomy During Pregnancy.

The patient was a primipara, aged 23. A large sessile subperitoneal fibroid attached to the anterior surface of the uterus, which was 9 weeks pregnant, caused fixation of the uterus in the pelvis in a position of retroversion. It was thought that retention of urine and abortion were likely to occur if the fibroid were allowed to remain, and that immediate myomectomy would give the patient the best chance of retaining her uterus. The fibroid, weighing 4½ lbs., was removed, and the bleeding area, 5½ ins. in diameter, was sutured with catgut. The uterus assumed its normal position at once, the pregnancy was not interrupted, and a living child was born at term, the labour and puerperium being normal.

Dr. H. Spencer said that there was no doubt the proper treatment had been adopted in this case, which had features exempting it from the general rule against performing myomectomy for corporeal fibroids during pregnancy. It was not to be expected that so large a tumour would permit the uterus to rise out of the pelvis. He had seen a case where a tumour nearly as large as a fist, which grew from the anterior wall, had caused retroversion of the gravid uterus, and by its movement when palpated through the distended bladder, closely simulated ballottement of the fœtal head. In that case the tumour, being much smaller than the specimen shown by Dr. Andrews, did not prevent the uterus from rising out of the pelvis, nor did it interfere with the pregnancy or labour.

Dr. McCann said that he had recently successfully enucleated a fibroid from the uterus of a woman, 5½ months pregnant. The operation was done on account of severe pain in the tumour, which, on removal, presented the typical appearances of red degeneration. Myomectomy was the ideal operation when it could be performed, and he desired to draw special attention to three points in the *technique*: firstly, the importance of making the incision as near as possible to the middle vascular line of the uterus; secondly, cutting within and not into the capsule of the tumour; thirdly, plugging the cavity at once with gauze until it could be finally closed with sutures. By attention to these points much loss of blood could be prevented during the operation.

Meeting held April 14 1910, Dr. H. Macnaughton Jones (*President*) *in the Chair*.

Dr. Henry Jellett read a paper on

The Place of Cæsarean Section in the Treatment of Placenta Prævia,

in which he said that the question to be considered was, Does Cæsarean section lessen the mortality of placenta prævia for the mother or for the child? It appeared to him that there was rather an exaggerated idea of the mortality caused by placenta prævia. During the last twenty years 32,546 women were confined in the Rotunda Hospital, and of these 138 had placenta prævia. Five of these 138 women died, a percentage mortality of 3·6. With a single exception, however, each of the women who died

were either moribund from hæmorrhage or in a condition of advanced sepsis when admitted to the hospital. The treatment adopted in these cases was bipolar version, the bringing down of a foot and leaving the expulsion of the child to the natural efforts. Dr. Jellett continued: The cause of death in placenta prævia in the vast majority of cases is one of three things—namely, hæmorrhage, sepsis or shock. The method of Braxton Hicks in placenta prævia immediately checks the bleeding, and so completely that no other treatment is required. If the patient is already septic when she comes under treatment, dissemination of the infection is probably less likely after the performance of bipolar version than after Cæsarean section. The latter operation, if followed by hysterectomy, might improve the prognosis as regards sepsis, but this procedure is a very formidable one and very likely to prove fatal. If the patient is profoundly collapsed, Braxton Hicks's treatment, carried out under an anæsthetic, is less likely to aggravate shock than Cæsarean section. It would appear, then, that there is only one class of cases in which Cæsarean section may be advisable—namely, that in which it is impossible to carry out the treatment of Braxton Hicks. There appear to be only three conditons which can render bipolar version impossible in an ordinary case of placenta prævia. The first is a rigid and undilated condition of the cervix; the second is where, after rupture of the membranes, the uterus has contracted down upon the fœtus; and the third is where the presenting part is fixed in the pelvic brim. Of these the first is the most important. In such a case it is possible to dilate or to incise the cervix or to plug the vagina. Forcible dilatation of the cervix is contraindicated because of the danger of tearing in this condition. If, on the other hand, it is possible to make with safety the deep incisions required for vaginal Cæsarean section in these cases, as the upholders of this procedure contend, then the smaller incisions required to enable the introduction of two fingers should present no danger. Plugging the vagina is, however, the best method of treatment in such conditions. The third class of case, in which the presenting part is fixed in the pelvis, is not usually serious. If the hæmorrhage persists it can be dealt with by plugging if the patient is in labour; by rupture of the membranes if she is not in labour; or by extraction if the os is fully dilated. Even if after plugging the vagina the hæmorrhage persists in a case of unavoidable hæmorrhage, bringing down the leg will always check it; and, therefore, this method could be employed with success after, if necessary, a preliminary incision of a rigid and undilated cervix. I may, therefore, sum up my views on the value of Cæsarean section as a means of reducing the maternal mortality. There does not appear to be any place for this operation in the modern treatment of uncomplicated cases of placenta prævia. In a few exceptional cases with a rigid condition of the cervix or premature rupture of the membranes, associated with an unhealthy atonic condition of the uterine muscle, it may be indicated. Such a condition might be treated by the vaginal plug, and, if internal hæmorhage then resulted, by Cæsarean section; but, personally, I should be inclined to treat such a case, if plugging failed, by incision of the cervix and the performance of bipolar version. In conclusion, I have only to say that I am unable to see any place for Cæsarean section in the treatment of placenta prævia. What we really require in these cases is an advance in our methods of treating the collapse of hæmorrhage, and the shock, and of combating infection; as thus we could reduce the present mortality and save some of the patients who are apparently moribund when they first come under treatment.

The PRESIDENT said the most complete summary of the entire subject was contained in the recently published brochure of Moncalvi, of Milan. In 1821 deliveries during the years 1907, 1908 and 1909 there were 45 cases of placenta prævia, with a mortality of six of the latter—four of the fatal cases being central. Bipolar version was not possible in any of these. Sepsis and death followed the one case of Cæsarean section. Professor Pinard, of Paris, at the Baudelocque Clinic, had informed him (the President) that from 1898–1908 there had been 183 cases of

placenta prævia with four deaths, a mortality of 2·18 per cent. No Cæsarean section had been performed, but there had been one Porro's operation in a case of pelvic deformity, with a successful issue. Compare this with the result in Professor Krönig's practice, which he had kindly sent to him from the Freiburg Clinic. Out of 40 cases of placenta prævia there had been one death—that is, 2·1 per cent. Twenty Cæsarean sections had been performed and no death.

Dr. Herbert R. Spencer said that Dr. Jellett had done well to call attention to the small mortality which attended the performance of bipolar version. The cases which terminated fatally did so as the result of severe hæmorrhage and infection before the treatment was adopted, and would not be saved, but would be further imperilled by the performance of Cæsarean section. He did not utterly condemn the operation, but thought it justifiable in a very few rare cases of central placenta prævia at or near full term with an undilated rigid cervix. Personally, he had seen only one case of placenta prævia in which he thought Cæsarean section would have been justifiable. If, however, the interests of the child were to be placed on the same level as that of the mother—a position he disagreed with—then the use of de Ribes's bag or Bossi's dilator greatly improved the chances of the child surviving. He called attention to the remarkable series recorded by Krönig and Sellheim of 26 cases of placenta prævia treated by Cæsarean section with no maternal or fœtal mortality.

Dr. F. H. Champneys thought that in placenta prævia the child must take its chance, and that any special attempt to improve the chances of the child would be at the expense of the mother. He thought it of importance that in any obstetric question the best treatment could be carried out by nature's weapons, in this instance by Braxton Hicks's bipolar version.

Dr. C. E. Purslow thought that plugging the vagina, if done efficiently, would give good results, and that post-partum hæmorrhage was a most grave complication of placenta prævia—a complication, moreover, which Cæsarean section would not guard against unless the uterus was removed at the same time.

Dr. Amand Routh agreed with Dr. Jellett that there was no place for Cæsarean section in the ordinary or routine treatment of placenta prævia. An American text-book, recently published, suggested that Cæsarean section might be done when the ante-partum hæmorrhage was uncontrolled by a tampon, where the os was undilated, the woman not much affected by the hæmorrhage, the child at term and living, and the patient uninfected and with a good environment. This would mean that Cæsarean section would become the general treatment of cases of placenta prævia seen in their early stages, and would be undertaken before a sure diagnosis was made and before dilatation of the cervix and Braxton Hicks's method of version had been attempted. This is clearly inadmissible and unjustifiable, but it is quite possible that it would be good treatment in some of the cases described by Dr. Jellett where the cervix was rigid and undilatable. According to Dr. Jellett this condition occurred in 4 or 5 per cent. of all cases. He recalled such a case more than twenty years ago, where serious ante-partum hæmorrhage had taken place in a primipara at a seaside resort. When he reached the patient he found the vagina plugged by the medical man in charge of the case, the external os was closed, and only with the greatest difficulty—after two hours under deep anæsthesia—could he get two fingers in, and eventually was able to bring down a foot and arrest the hæmorrhage. Next morning the cervix was still absolutely rigid, and did not yield for another 15 hours, when the child was born. The cervix was, however, torn, and the patient eventually died from sepsis. If he had had that case to-day, with the added 20 years' experience, he would certainly perform Cæsarean section.

Dr. W. J. Gow thought it important to remember that there were different varietes of placenta prævia, and it was only in a central placenta prævia that treatment by Cæsarean section should be considered. He had performed Cæsarean

section for one case of central placenta prævia in which the mother and child did well. He thought the indications for such a line of treatment were as follow: that the placenta be centrally situated, that the os be small and rigid, that free bleeding occurred on any manipulation, that the surroundings were favourable, that the mother was not in a state of collapse, and that the child was alive and near full term. In post-partum hæmorrhage occurring in cases of placenta prævia he thought it probable that the bleeding generally came from lacerations produced during extraction of the child. Another class of case in which he thought Cæsarean section indicated was when the patient had a purulent vaginal discharge in addition to a central prævia, as this class of case was very likely to be followed by grave septic infection.

Dr. W. S. A. GRIFFITH had performed Cæsarean section for placenta prævia on one occasion with a favourable result for the mother and the child. He thought it monstrous to talk of Cæsarean section as the treatment for placenta prævia except in very rare and exceptional cases. It was only in cases of great difficulty and danger to mother and child that the operation should be performed.

REVIEW.

ATLAS OF MICROSCOPICAL DIAGNOSIS IN GYNÆCOLOGY. By Privat-docent Rudolf Jolly. With 54 Illustrations. Pp. 87, and preface. Berlin and Vienna: Urban and Schwartzenberg. Price M. 17.50.

Under the above comprehensive title the author has written a very presentable little book which has been most ably illustrated by Frau M. Ehlers. To be candid, we may say at once that the chief charm of the work lies in the very admirably coloured microscopic drawings. The morbid histology of tubes and ovaries finds no place whatever in this atlas. Its scope is confined to uterine pathology, with the exception that a few words and two illustrations are devoted to vaginal catarrh and urethritis at the end of the book. The first thirteen pages are allotted to microscopic technique and to the method of obtaining tissue for examination.

A description of the normal appearances of uterine mucosa and cervical epithelium follows. Endometritis and erosion are classified in the usual manner, and the descriptions, with drawings of each well-known type, occupies eight pages of the work.

The mucosal changes consequent on menstruation are well illustrated, and include a good drawing of dysmenorrhœal membrane. Ten pages are devoted to gestation changes, and here we note that Opitz's "pregnancy-glands" are depicted, in spite of the fact that these structures are well known not to be characteristic of pregnancy. Carcinoma uteri is disposed of in ten pages and ten illustrations. One of the latter, showing adenoma malignum evertens incipens, is by no means convincing, and would pass equally well as an illustration of a glandular polypus.

We welcome a good illustration of condyloma vulvæ. Only four illustrations are shown of sarcoma uteri, and it is evident that the author's experience of this disease is limited.

The text is confined to very short paragraphs, the pictures are good and well reproduced, the paper and print excellent, but the scope of the work is so limited that it by no means supplies the long-felt want of a comprehensive treatise on morbid gynæcological pathology.

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By J. LORRAIN SMITH, M.A., M.D. Professor of Pathology

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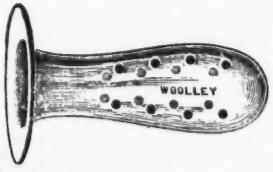

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